



Computer Weekly

Thursday, May 19, 1983



30 DP candidates take on the (Party) system

by John Riley
THE computer industry is fielding about 30 candidates in the General Election. They come from all sectors of the industry, and cover all the main parties.



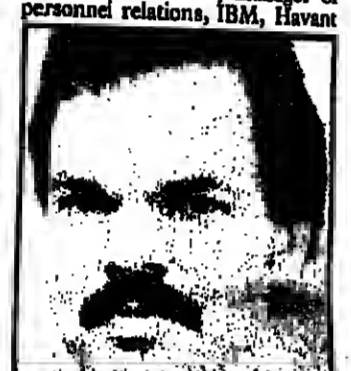
WOOD... ICL's Tory

Margaret Joachim, an API consultant with I.P. Sharp Associates is standing for the Liberals against Mrs Thatcher in Barnet, and Finchley. "There is no point in putting up old industries - we must develop the newer ones and make sure people can retrain and equip themselves," she said.



BURTON... Putting SDP Case

processors for AES Data (Henley); Richard Carden, a systems engineer with IBM Norwich (South Norfolk); John Hemming, senior consultant with software house SMS UK (Birmingham, Hall Green); Steven Mulholland, a senior computer operator with Thomas Case (Warral West); Ray Foynter, founding director of Database Computer Consultants (Nottingham South); Leslie Stringer, administrative manager with Reliance Systems (Wellingborough) and John Waller, managing director of systems house Insurance Systems and Services (Twickenham).



BASTIN... ICL's Labour man

Also standing for the SDP Party are Howard Gibson, manager of personnel relations, IBM, Havant (Chichester); Ralph Leishman, a computer audit specialist with a firm of chartered accountants (Cunningham North); and Lester George, managing director, Ferranti Instruments (Billesmere Port).

Timothy Wood, a project manager with ICL Reading, is standing for the Tories in Stevenage. He is one of those who developed George III, and produced a Bow Group pamphlet on the use and manufacture of computers which has influenced the present government. Other Conservatives include Leslie Lawrence, a software engineer with Sperry in the maintenance and support group for V77 minis (Newcastle-under-Lyme); Colin Hancock, Director of TK International Foods, who was national chairman of the Business Computers Users Association (Grimsby); and Simon Coombs of British Telecom (Swindon).

"Labour would have put more into implementing the recommendations of the Alvey Report," said ICL software marketing manager Colin Bastin, who is the Labour candidate for Wycombe.



JOACHIM... Liberal challenge to Thatcher in Finchley

ICL Stevenage. Other Labour candidates include Joe Gluzza, computer officer at Cambridge University (Cambridgeshire SW); Jon Gray, systems analyst with Somerset County Council (Taunton); and David Hewitt, who is in the purchasing department of IBM Havant (South Dorset).

The four Ecology Party candidates are Nigel Callaghan, Geof-

Redundant chief's threat to sue Philips

by John Kavanagh
A FORMER senior manager at Philips Business Systems in the UK is preparing to take the company to court over the alleged non-payment of commission and expenses totalling £8,000.

And Andrew Cereseto says he could be a test case for other regional managers made redundant by the firm last year.

Cereseto was one of five regional managers affected by a company restructuring in February 1982. He and two others were made redundant and sent home on basic pay to sit out their six months' notice. This is common practice among computer companies which do not want to give departing staff the chance to gather customer lists and other information.

But Cereseto says during that six months he lost commission which normally made up one-third of his salary. And he says the company failed to pay "standard" expenses and allowances which were written in his contract.

Cereseto also claims Philips is denying that he was on a senior grade. The grade is not written in his contract because of paperwork delays, but he has the announcement of his appointment from the company notice board. That states the grade.

Cereseto's claims do not only cover the six-month redundancy notice period. He says Philips owes him commission on the year before the restructuring.

Philips has offered £400 "to settle amicably." Managing director Brian Manley told Cereseto in a recent letter that the "termination package was correctly calculated."

The company knew of no legitimate claims, Manley said. The £400 related to the expenses claimed.

Cereseto said the matter was now with his solicitor.

He added that the other two regional managers were watching his case before deciding whether to follow him into court.

Philips declined to comment.

Unix 5 to run on top chips

by George Black
WESTERN Electric, the manufacturing arm of American Telephone and Telegraph, has agreed to adapt its Unix version 5 operating system to fit with chips made by Motorola, Intel and National Semiconductor. The chips involved are NatSemi's 68032 family, Motorola's 68000s and Intel's 286s. Western will launch its own Bell Mac chip in competition later this year.

NatSemi's Unix campaign was advanced at the National Computer Conference in the US this week

where its Unix-like Genix was unveiled.

NatSemi said that Unix version 5 source code was to be modified to run on its 160320 chips and would be available in the first quarter of 1984.

Motorola said its 6802-based version would be called V68 and would be commercially available next year, though the first product was likely to be completed within 90 days.

Intel said version 5 would be adapted to run on its 286, the top of the high-powered 8086 range.

'Japanese have put too much effort into robots'

by Andrew Thomas
THE Japanese have gone over the top with robots, says a top UK engineer. Professor Richard Heginbotham, director-general of PERA, the Production Engineering Research Association, was speaking at the opening of the robot demonstration, training and development centre last week.

"The Japanese have gone over the top," said Heginbotham. "They're putting too much effort into robots which can cope with very high degrees of disorder. Things shouldn't be in that state in the first place - that's not engineering. They've got robots doing jobs which could just as easily be handled by 20 diodes."

And Heginbotham also stated the current vogue for voice recognition systems. "If you're not careful, you can get bogged down in humanoid concepts. The future is inter-machine communication, not human interfacing."

BBC goes live with its micro show

by Nuala Moran

THE BBC intends to show in its next programme in the Computer Literacy Project that "the reality of working with computer hardware and software is that many things can and do go wrong."

The demonstration will take place on October 2, when a live special lasting 115 minutes will be screened on BBC1. The programme will be presented by Ian McNaught-Davis, managing director of Comshare and presenter of *Making the Most of the Micro*, who will be joined by a panel of experts, micro users and a studio audience.

According to the BBC the programme which made up the first two TV series, *The Computer Programme* and *Making the Most of the Micro*, "took hours of studio time and careful editing to ensure that all hitches were erased in the final product." By doing a live programme the producers are hoping to capture some of the reality of using micros, but also to show that when things go wrong a great deal can be learnt.

The BBC's admission of how much time went into producing a smooth finished product fits in with the comments made by McNaught-Davis to the London

branch of the British Computer Society at the end of April. He said "the whole thing was a disaster."

Most of the programme makers spent a great deal of time trying to get the micros to perform the most elementary tasks he said, and "the only micro that worked was the one you saw."

The panel of experts joining McNaught-Davis on the live special will include John Cole of Acorn, Richard Fothergill of the Microelectronics and Education Project, and Ian Trachman, a software consultant who worked on the previous two series.

A phone-in line to the studio will give viewers a chance to put their computer queries to the panel.

Anyone interested in taking part in the programme either as a member of the audience or in the phone-in is invited to write with questions, comments or suggestions to Micro Special, PO Box 7, London W3 6XJ, giving a daytime telephone number.

● The BBC Micro is reckoned to be the front runner as the standard machine for Norwegian secondary and primary schools. Norway's Department of Education has recently recommended a micro in schools programme.

Systeme pays the price for CDC's £8m

by John Kavanagh
UK SYSTEMS builder Systeme has paid a heavy price for the injection of new finance. Out goes chairman John Parkinson, while founder managing director John Gow becomes marketing director.

And the company has made a "very substantial" payment to US minicomputer supplier Digital Equipment in a High Court action over software copyright.

US mainframe giant Control Data is now the biggest single shareholder, with around 40%. The company has put £8 million into Systeme - and put in a senior marketing vice-president, Vernon Stirling, as chairman and acting managing director. Parkinson has left Systeme to be a financial consultant. Gow is vice-chairman as well as marketing director.

The company will be looking for a new permanent managing director.

Existing institutional shareholders have put in £5.8 million - plus £3.4 million in new convertible preference share capital.

All the shareholders said Systeme would keep independent. It will go for a Stock Exchange listing, possibly in the next six months.

The government's British Technology Group, a shareholder since 1977, welcomed "the willingness of the private sector to meet Systeme's future financial needs."

Gow said he was "very happy" with the new Systeme. "We have a lot more finance than we have ever had and our sales situation is very buoyant," he said.

He added that the company had cleaned the slate with DEC over software copyright and had a new trading agreement. "We've cleared our differences and now have a happy association with DEC," he said.

Systeme did not contest DEC's High Court action. Gow said the company wanted to settle the dispute quickly and get on with trading. Systeme will now deal with DEC in the UK rather than with the US headquarters, as in the past.

DEC said it was pleased the dispute had been settled and looked forward to a "mutually beneficial trading relationship".

The settlement, worth "several million dollars" involved agreement by Systeme not to infringe DEC software copyright and a promise to "strengthen the proper monitoring and reporting of software licensing".

This was DEC's second High Court victory over UK firms in two weeks. Early this month it won an order restraining the small systems house Darkcrest from infringing its software copyright and passing itself off as a DEC OEM.

by Kevin Cahill
ICL has bounced back into the black with half-year profit of £22.7 million and turnover up £65 million.

According to chairman Sir Christopher Laidlaw turnover for the period October 1, 1982, to March 30, 1983 was £401.2 million compared with £335.1m for same period in 1981/82.

The £65 million improvement was based in part on a 30% growth in deliveries of the DRS distributed product, which is now accounting for up to one-third of the company's sales.

Sir Christopher said the company's network product line, targeted as the engine for growth in the remainder of the Eighties, is continuing to develop satisfactorily, and the joint development with Fujitsu on the DMI and Batriel mainframes is on time and also progressing satisfactorily.

There was no mention of the delayed Mite-PABX in the chairman's initial statement but Sir Christopher noted that the huge project to computerise PAYB is going well.

Outside the UK good progress has been made towards profitability in all the subsidiary companies.

The trading profit of £22.7 million for the half year compared with a loss of £13.1 million for the same period in 1981/82.

Because of the rights issue Sir Christopher was able to show total debt at the company down to £59 million worldwide, compared with £180 million at the beginning of September 1982.

This reduction has helped the company to show a healthy £12.5 million post-tax profit. This was just about the middle of most analysts forecasts.

Industry analyst Nick Measham, of stockbrokers Laurie Millbank, said the re-appearance of growth at ICL was very welcome and he was looking for a full year sales of between £800 and £850 million.

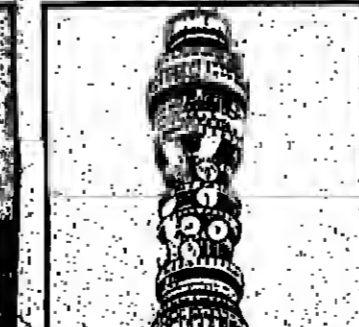
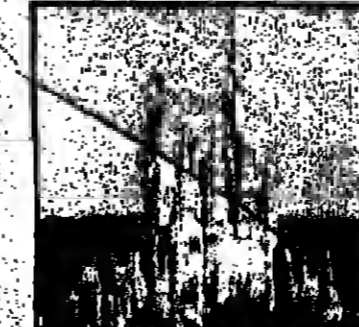
Fact and fantasy at NCC '83 in Anaheim... 6

Special feature on telecomms... 17/22

'We are at war' says Alvey director... 3

Top Jobs... 35

Job Vacancies... 31/63



Software File	11
Company News	12
Micro News	13
Profile	14
Platform	14
Downside by Chad	15
Leaders	15
Letters to the Editor	15
Workplace	16
Puzzle	16
Foxes	23
Diary dates	23
Products	25/27, 30
Marketsplace	28/29
Sales Bit	62

For more information, a Seminar or a demonstration please contact Mandy Tolitt
Database Products Group
Logica Limited, 64 Newmarket Street
London W1A 4SE
Telephone 01-637 8111

* VAX is a trademark of Digital Equipment Corporation



CARPENTIER... "Ready to drop programme if necessary"

Politicians told to stop meddling — or £930m Esprit is off

by John Riley
EUROCRATS last week warned that they will withdraw the proposed £930 million fifth generation research programme Esprit if European politicians meddle with it.

The European Commission is keenly aware of hold-ups and cutbacks in the current Multiannual Informatics Programme caused by inadequate provision of administrative resources, and is determined that Esprit will not suffer for that reason.

"If we do not get the requested administrative resources to manage the project we will not take responsibility for managing the programme," said Dr Jean-Marie Cadoui, director of the EC Information Technology Task Force, speaking in Brussels last week.

Michel Carpentier, director-general of the IT Task Force, and responsible for Esprit, confirmed: "We are ready to drop the programme if necessary." He added that he did not expect a need for a large management staff. The 9268 man years of research between now and 1993 would need up to about 80 co-ordinating staff when the programme is in full swing - about half the normal proportion

for EC projects.

Further details of the proposed programmes were revealed last week. The subject areas are the same as those outlined in the draft proposal which has already been published. These include microelectronics, software technology, advanced information processing, computer integrated manufacturing and office automation.

The Commission is enthusiastic ■ Continued on page 2.

RAPPORT

The proven Relational Database System for

VAX*, PRIME & ICL 2900

and over 28 other mainframes and mini computers.

Also Micro RAPPORT is available for micro computers.

RAPPORT is the proven system because —

- it is used at more than 170 installations worldwide
- it has been used commercially for four years
- it is used for both small and large databases
- it is used in business, industry, government and research
- applications include computer aided design, stock control, time sheet analysis, financial management, project management, personnel administration, literary referencing, scientific data analysis and many more.

RAPPORT can be used by Fortran, Cobol or Coral application programs or by using its own powerful interactive Query language for report formatting, data acceptance and update, and answering ad hoc queries.

RAPPORT gives the power of traditional database systems with the benefits of the new Relational approach to data management — an essential aid to application development.

For more information, a Seminar or a demonstration please contact Mandy Tolitt
Database Products Group
Logica Limited, 64 Newmarket Street
London W1A 4SE
Telephone 01-637 8111

logica

* VAX is a trademark of Digital Equipment Corporation

Mock-up was used to win \$84m deal

PARADYNE of Florida last week admitted that it had used a mock-up of a data encryption system to win a \$84 million social security administration contract.

The Securities and Exchange Commission (SEC) had sued Paradyne, charging that the company passed off the mock-up as the real thing in a preliminary demonstration to social security officials.

Paradyne president and board chairman Robert Wiggins made the admission in a carefully worded letter to stockholders issued last week. Until that letter, the company had steadfastly denied the SEC allegation.

Politicians warned off

From front page.

and optimistic about the success of the main Esprit programme, and it is to be industry driven, and the 12 top European companies have already been collaborating in the formulation of the programme over the past two years.

Cadieu was anxious to point out that the Esprit programme is not a protectionist measure. "Esprit is not a declaration of war against Japan or America," he said, "it is not a programme against but a programme for. The EC has nothing against transnational co-operation providing Europe is not just a link in the chain and can take part in the strategy." (But Alvey director Brian Oakley calls it war. See story page 3).

The programme now goes through a final phase. The proposal has to be approved by the Council of Ministers after taking Parliament's and the Economic and Social Committee's opinions into account. It is hoped that the decision will be made in late October, in time for the budget to be approved in December.



FEIGENBAUM... "US firms pass up opportunities through an emphasis on short-term profits."

Fifth generation project threatens US dominance

Fast profits won't beat the Japanese

by Robert Parry
US FEARS that Japan's fifth generation project will cut American dominance of the computer industry surfaced at last week's National Computer Conference in Anaheim. Unless the US quickly makes long term plans to focus its computer development activities, it will lose out to the Japanese and European consortia working on fifth generation computers.

US firms pass up opportunities for future technological developments through too great an emphasis on short-term profits. IBM and other large computer companies do not share the results of research, leaving many technological developments to go unused, said Edward Feigenbaum, of Stanford University.

The amount of money the US has been sinking into advance computer R&D work is not the sticking point - according to artificial intelligence worker Feigenbaum. Japan's Institute for Next Generation Computer Technology, ICOT, has a 10-year budget of around \$855 million. "It's significant but not scary," added Feigenbaum, noting that IBM's annual R&D budget exceeds this.

"The challenge has evolved because these various competitor nations and coalitions of nations have perceived that the US approach to computing has not been very appropriate in terms of exploiting opportunities that have developed here," said David Brandin of US-based SRI International. The feeling that came out of this

fifth generation conference was that to combat this Japanese threat - which far outweighs from Europe - the US government should step in to organise the wealth of knowledge within American companies. At US companies not prepared to participate should be forced into it.

A start has been made on industry co-operation through the Microelectronic and Computer Technology Corporation (MCC) set in motion by Control Data, William Norris and bringing together 12 high technology companies in a R&D consortium. It has picked on a site - Austin, Texas - and should have a base management force working under its president Bobby Inman by August.

'US will buy 85% of LANs'

by Donald Kennett
MORE than 85% of the sales of local area networks will be in the US, according to US industry analysts Business Communications of Stamford, Connecticut.

Worldwide local network sales were worth \$127 million last year, according to BCC's latest report. Emerging Local Area Network Business. This year the figure should double and by 1990 it should grow six-fold.

In the US, the growth is being fuelled by the fact that peripheral equipment and applications software are accounting for an increasing proportion of system costs. The implementation of net-

works designed for factory environments and of software to handle an increasing variety of networked peripherals has generated interest from new business sectors, the company says, taking networks outside the university, government and financial institution sectors.

Last year, one per cent of all US companies with more than 20 employees had LANs installed. This proportion was expected to grow to eight per cent in 1986 and 17% by 1990.

Specialist LAN companies such as Ungermann-Bass and Network Systems currently had two thirds of the market value, but this share would go down although the

number of networks they installed would rise in relation to their competitors.

Competition came from PABX companies whose products supported data processing applications and video transmission. In the future it would come additionally from computer companies such as IBM and Hewlett-Packard and telecommunications companies such as American Bell.

The most rapid technological advances had been made by companies making Ethernet-compatible networks, the report says. * Emerging Local Area Network Business, Report number G-074, 150 pages, \$1,250, BCC, PO Box 20700, 9 Vindicator Road, Stamford, Connecticut, USA.



CADIEU... "A number of people on the Esprit panels were also on the Alvey Committee."

'Esprit offers greater support than Alvey'

by John Riley

SMALL companies can get greater support from the Common Market's Esprit scheme than under the UK's own Alvey programme, it was revealed this week.

Some smaller, high-risk enterprises could get more than the 50% official backing offered by the British government. And universities which cannot get support from industry but have submitted outstanding proposals could even get 100% grants from the EEC.

Alvey programme administrators have been worried that the government's decision to limit its underwriting to 50% - Alvey himself recommended grants of up to 90% in deserving cases - would be too low to be effective. The fear was that many smaller but highly innovative companies, especially in the software engineering field, would be cut out of the project.

They would prefer to fund research themselves than get only half of the work paid for by the government and then be obliged to share their results with other team members.

Commission officials said a substantial number of the proposals sent in by 620 organisations had come from smaller companies. Dr Jean-Marie Cadieu, director of the Commission's Information Technology Task Force, affirmed that there is communication between the national programme and Esprit. "A number of people on the Esprit panels were also on the Alvey Committee", he said. "Communication will be between us, the national authorities and industrial participants, and must be on a project to project basis to avoid duplication, or at least to explain the rationale behind any duplication."

'We are at war' - Alvey director

THE new director of the Alvey Programme, Brian Oakley, set the scene for UK initiatives on fifth generation computers with talk of an economic war.

"I believe we are engaged in war - an economic war more important than that affair in the South Atlantic."

Oakley, who was speaking at the SPL-Insight inaugural dinner in London last week, added: "The UK cannot get involved in trifling affairs while the enemy is walking across the parade ground."

SPL-Insight is a study group set up by SPL to look at knowledge-based systems and the user interface.

Oakley, who is commanding widespread support from industry, academia, and government in his role as chairman for the Alvey Programme, warned his audience that the UK must not fritter away its excellence while "industry fights industry and government department fights government department."

ment fights government department."

Oakley gives up his post as secretary of the Science and Engineering Research Council on June 2 to take up an under-secretary level appointment at the Department of Industry. He says he will quickly form a small, four-man directorate "lacking in bureaucracy", which he promises will be "fast acting" and open to advice at all times.

Oakley's determination to succeed is obvious, but he admitted that the job really requires "someone who can walk on water."

"I can swim," he said, and added that, whatever Number 10's attitude is towards government intervention, the people in Whitehall had every intention of making Alvey work.

This no-nonsense approach has been welcomed by industry leaders, and Oakley emphasised that the Alvey report is a frame-

work to start on, not a five-year prospectus. That should be of some comfort to David Fairbairn, director of the National Computing Centre, who voiced concern that Alvey may be following too closely in the footsteps of the Japanese.

The Japanese fifth-generation programme is a marketing exercise as much as anything, geared to what Japan is best at, he said. He suggested the UK should consider a different emphasis that caters to UK strengths, particularly in communications.

The five-year, £350 million Alvey Programme is charged with establishing collaborative research in software engineering, very large scale integration, man machine interface, and intelligent knowledge based systems. The government's contribution will be £200 million, with the rest to come from industry.



OAKLEY... "I believe we are engaged in war."

Upgrading problems halt Stockholm share deals

by John Kavanagh

STOCKHOLM stock exchange has closed for eight days in the last four weeks because the share registration computer system could not cope.

The registration company, VPC, runs two ICL 2966 mainframes and has been changing to the 2900 series operating system, VME, from ICL's DME system, which allows programs from its old 1900 series to run on 2900s.

Changes in tax relief rules affecting share trading has led to a rapid growth in business over the last two years and VPC had to bring forward its conversion plans by a year.

"We had to move too quickly to VME," said computer manager Bengt Adamson. "We did not have time to test complete suites of programs."

To enable VPC to catch up, the stock exchange had to close for a whole week in early May and on other days trading was restricted to two or three hours.

NCR tries to plug a mainframe gap

by Kevin Cahill

DESPITE gloom among forecasters about the future of non-IBM compatible mainframes, NCR has staked its claim to a place in the sun with seven new models for the V8600 series.

The new machines, which plug a competitive gap ranging from the IBM 4341 model 11 to the 3085 uniprocessor in the 3081 series, are all 32-bit processors.

The announcement was made at the National Computer Conference in the US.

The offering is a single processor, the V8635, and a tightly coupled dual processor the V3645. Together they are the building blocks for a configuration of loosely coupled processors running under NCR's proprietary

operating system. They perform best in a transaction processing, high volume environment, according to an NCR spokesman.

The two basic machines can be configured into five separate models, to give the seven products NCR is advertising, and entry level prices in the US are about \$500,000 for the V8635 and just under \$800,000 for the V8645.

All the new mainframes are air cooled and are based on emitter coupled logic semiconductor technology. Separate microprocessors drive part of the I/O system, giving two advanced features called Dynamic Channel Director (DCD) and Dynamic Channel Exchange (DCX), which substantially increase the availability and utilisation of the I/O device.

DEC COMPATIBLE MEMORY

Offered new from Plessey - now available ex stock

PM S750 (1st & 2450)

1 Mbyte single board ROM MOS memory

* BRITISH MANUFACTURE

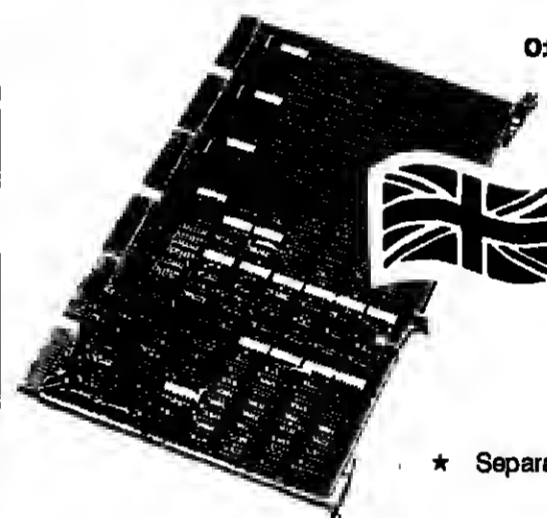
* VAX 11/750 COMPATIBLE - Max 8 Mbyte

* VAX 11/730 COMPATIBLE - Max 5 Mbyte

* PDP 11/70 COMPATIBLE - Max 4 Mbyte

* On/Off switch which isolates memory without removing it from the system

* Separate LED's for memory selection and Battery Back Up Indication



Also available MOS memories

	1 Mb	3/4 Mb	1/2 Mb	256 Kb	128 Kb	64 Kb	32 Kb	List Price Fully Populated
VAX 780* ECC				*				£729
PDP-11/44* PDP-11/24* ECC	*		*	*				£2387
PDP-11/34* FAST PDP-11/24* PARITY			*	*	*	*		£858
LSI-11/23* LSI-11/23+* PARITY	*	*	*	*	*	*		£1756
LSI/2* PARITY/NON PARITY						*	*	£429

Offered with full

Technical Support Software Support Field Service/Installation/Maintenance

Complete range of compatible systems/peripherals available

*Trademark of Digital Equipment Corporation

Please send me full catalogue of all DEC compatible devices

Name _____
Address _____

Tel. _____

Supplied by CENTROSE (CPD) LTD
Official UK Distributors for

Plessey Peripheral Systems

HEAD OFFICE:
27 Lyveden Road, Brackmills Industrial Estate, Brackmills, Northampton NN4 0ED.
Tel: Northampton (0804) 82711 Telex: 317293
OFFICES:
Manchester 061-980 7771 Ascot 0690 23491

QUALITY SERVICE centr*se

Wilkes Computing Announce the

NEW GEN II RETRO-GRAPHICS

UPGRADES
Televideo™
910/912/920
925/950

DEC™
VT101/102
131

Lear Siegler™
ADM 3A
ADM 5

Adds Viewpoint



FEATURES INCLUDE:

- 4010, 4014, 4027 Simulation
- Local graphics intelligence
- Arc and circle drawing
- Polygon drawing
- Area fill
- Crosshair cursor
- Optional I/O Interface
- Optional Light Pen

Televideo is a trademark of Televideo Systems.
DEC is a trademark of Digital Equipment Corporation.
Lear Siegler is a trademark of Lear Siegler Inc.
ADDS is a trademark of Applied Digital Data Systems Ltd.

Wilkes Computing
Tel. (0272) 277399/25921. Telex 449205
Birch House 72 Prince Street, Bristol BS1 4HU

Union row over Irish hospital computers

Tom MacSweeney
PLANS by the Irish Department of Health to computerise Irish hospitals have been hit by union objections.

The Department has been strongly criticised for its handling of the situation, having announced that it had asked the Dublin-based American company, McAuto Ireland, to set up two pilot schemes - one at St James's Hospital in Dublin, the other at the Mater, also in the city.

Following this announcement, the Department was accused of making its decision without proper consultation and without comparing the McAuto systems with those of another competing company.

McAuto was set up evidently in anticipation of getting the business, but has never before installed computer systems in Ireland.

The other competitor for the

contract, said to be worth about £60 million, was SMS Ireland, which has installed systems in 16 Irish hospitals.

The Local Government and Public Services Union has complained that it has had great difficulty in getting information about hospital computerisation from the Department and alleged that in some cases it was misled.

At the weekend the Department announced that the pilot project for St James's Hospital had been temporarily halted.

There is also confusion about the type of equipment to be used. A Department of Health spokesman claimed that SMS had suggested using the same equipment as McAuto intended to use, but SMS evidently claims that it was asked to quote for American software, but would prefer to use its own Irish products.

Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 6AS. Telex: 892084 BISPRS G

EDITORIAL		DISPLAY ADVERTISING		CLASSIFIED ADVERTISING		CIRCULATION	
Inquiries 01-461 8642/8641		Advertisement Manager Harry Hooton		Group Advertisement Manager Brian Durrant		Terms of circulation continue to be the same as in the past. Computer Weekly is sent free of charge to the following categories in the UK only: Company directors, company secretaries, management service executives, civil servants responsible for computing, management/computer consultants, managers/supervisors, systems analysts/O&A, officers, programmers, operators and computer field engineers, and marketing personnel in the computer industry.	
Editor David Crower	01-461 2122	Deputy Advertisement Manager Clark Oliver	01-461 2122	Consultancies Sales Julie Hemmings	01-461 2128	Subscriptions UK £25, Students £12.50, US, Canada \$14, Students \$6, Europe £45, Students £22.50, Middle East, North Africa (telmail) £35, North & South Africa, Southern Africa, South Asia (telmail) £35, Far East, Australia & New Zealand (telmail) £75.	01-461 2127
Deputy Editor Neil Goss	01-461 2124	Sales Executive Philip Broughton	01-461 2124	Sales Executive Sara Bayliss	01-461 2127	Circulation Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Financial Editor Kevin Cahill	01-461 2041	Sales Executive Jennifer Simpson	01-461 2041	Direct Client Sales Robert Bailey	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Feature Editor Boris Sedacca	01-461 2082	Sales Executive Celia White	01-461 2082	Direct Client Sales Michael White	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Advisory Editor Robert Parry	01-461 2044	Sales Executive Harry Allen	01-461 2044	Direct Client Sales Neil McDonnell	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Software Editor George Black	01-461 2422	Sales Executive Ken Parrot	01-461 2422	Direct Client Sales Gillian Coffey-Smith	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Reporters Philip Hunter	01-461 2061	Advertising Production Roger Allaway	01-461 2061	Direct Client Sales Shaona Morris	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Donald Kennett	01-461 2062	Advertising Production Roger Allaway	01-461 2062	Direct Client Sales Heather Bellcourt	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Nuala Moran	01-461 2063	Advertising Production Roger Allaway	01-461 2063	Direct Client Sales John Botting	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
John Miller	01-461 2064	Advertising Production Roger Allaway	01-461 2064	Direct Client Sales Mike Crisp	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Andrew Thomas	01-461 2065	Advertising Production Roger Allaway	01-461 2065	Direct Client Sales Beverley Taylor	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Chief Sub Editor Chris Thornton	01-461 2066	Advertising Production Roger Allaway	01-461 2066	Direct Client Sales Owen Kelly	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Deputy Chief Sub Editor John Murphy	01-461 2067	Advertising Production Roger Allaway	01-461 2067	Direct Client Sales Birmingham: Vio Ebert	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
Sub-editor Julia Cretwell	01-461 2068	Advertising Production Roger Allaway	01-461 2068	Direct Client Sales Birmingham: M16 09V, 061-672 8861	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
	01-461 2069	Advertising Production Roger Allaway	01-461 2069	Direct Client Sales Manchester: M20 09V, 061-672 8861	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127
	01-461 2070	Advertising Production Roger Allaway	01-461 2070	Direct Client Sales New York: 205 East 42nd Street, New York, NY 10017, (0151-212) 867 2800	01-461 2127	Production Dept Business Press International (B&O) Ltd, Oldfield House, Parrymount Road, Haywards, North Sussex. Tel: 0444 449118.	01-461 2127

APL Courses for APL professionals

Sphinx, in conjunction with Dyadic Systems Limited, announce a series of two-day courses on Dyalog APL. The locations and starting dates are listed below.
London 9th, 13th, 16th June.
Birmingham 13th June. Manchester 15th June.
Newcastle 20th June. Edinburgh 20th June.
Leeds 22nd June. Glasgow 22nd June.
Bristol 27th June.

These courses will highlight the main features of Dyadic's new Unix based Dyalog APL now running on a number of 16 and 32 bit microcomputers. A working knowledge of APL is assumed.
Fee: £195 inclusive of course material and lunches. Any participant purchasing Dyalog APL within two weeks of attendance will receive a total rebate of the course fee.
Applications with cheque to Mrs H. Smith, Office Administrator, Sphinx Limited, 43-53 Moorbridge Road, Maidenhead, Berkshire SL6 8PL. Tel: (0628) 78343.

Unit is a trademark of Bell Laboratories. Dyalog is a trademark of Dyadic Limited.



QUALITY PRODUCTS

Alvey plans are a 'waste of money'

by John Riley
SOFTWARE guru James Martin slammed the Alvey programme last week, claiming that it intends to waste taxpayers' money to develop a product that already exists.

Martin is chairman of international consultants DMW, which markets Use-it. This is a facility that designs mathematically correct systems and generates bug-free code to run them, and is considered by Martin to be as revolutionary to software development as the transistor was to hardware development.

Use-it, which may eventually make programmers obsolete, according to Martin, has stimulated serious interest by top computer manufacturers. According to DMW, ICL supreme Robb Wilmut is convinced enough in its potential to evaluate it - even though he will have to buy two

Digital Equipment Vax minicomputers to run it.

DMW is well respected and influential within the industry - the company persuaded Texas Instruments not to scrap its personal computer plans, and also produced a 10 years forward look for ICL last autumn.

"There is no mention of fourth generation languages in the Alvey Report", complained Martin, "and they have never heard of Use-it. I would be willing to demonstrate it to the committee so that they don't have to spend \$100 million of taxpayers' money trying to make it."

Use-it was produced by Margaret Hamilton and Saydean Zeldin, who saw the need for a bug-free code generator when working with the Apollo space programme in the 1960s. They ignored von Neumann constructs which are the ba-

sis of modern computing and started rebuilding constructs that can be mathematically proved. They split away from the Apollo programme and formed HOS, a small Boston-based research company.

Use-it provides graphic tools for top down systems design, analyses all the parts of the requirements definition for logical correctness, and then produces bug free source code.

The future looks bleak for programmers, although Martin still sees Cobol in use until the end of the century. However, programmers will have to learn to use more powerful tools if they want to earn money. Programmers are happy to automate other people's jobs, but unhappy when it comes to automating their own, so he expects resistance from programmers and DP departments.



MARTIN... No mention of fourth generation languages.

Bureau's profits up to £321,000

by Neala Moran
THE City of London DEC bureau, Rolfe and Nolan, which specialises in supplying computing services to futures and commodity brokers, has announced profits before tax of £321,000, for the year February 1983. This is up from £300,000 in 1982, an increase of 7%. Turnover increased 34% from £1,355 million in 1982 to £1,821 million.

The company provides computer services to commodity brokers, who act as middlemen between producers and manufacturers, buying and selling such goods as agricultural produce, metals or foreign currencies. It has developed special accounting programs for this purpose. Presently brokers buy bureau time from Rolfe and Nolan to run these applications, but there are plans to sell the programs for use on the client's own machines.

At the moment Rolfe and Nolan is redeveloping its accounting programs and Malcolm Rolfe,



ROLFE... Boost in activity in the commodity markets.

managing director, explained that it was the cost of this that had held back profits. "The programs are being redeveloped to incorporate some additional features and update them so that they will run on a Digital Equipment Vax," he said. The programs previously ran on a PDP11.

The costs of this investment were partly offset by an increase in commodity business. This was in

part due to an increase in the number of clients but also because there was a boost in activity in the commodity markets. And new markets are being set up. "Eight or nine years ago you were just talking about accounting for contracts of cocoa, tin etc. Now the commodity and futures markets are dealing with currencies, American stock indices, and interest rates," said Rolfe.

Two more micros arrive from Japan

by Andrew Thomas
THE trickle of Japanese micros on to the European market is showing signs of becoming a flood. Following last week's news that Fujitsu will be bringing eight and 16-bit micros here in the autumn, two other companies are moving into the domestic market.

The first product of the collaboration between Fujitsu and Matsushita comes in the shape of the Duet 16, an 8086-based micro aimed at the small business market and launched by booming systems house Lambert. The Duet is produced by Panasonic, a company jointly owned by Fujitsu and Matsushita, and features up to 512K of RAM and 32 Mbytes of backing store on board.

And going for the lucrative home market is the first low-end product from Sord, which has up till now concentrated on business systems. The M5 is aimed squarely at the Sinclair and Texas machines, and comprehensively outperforms its competition, and not a few more expensive machines, in the area of graphics.

The £199 M5 is a dual processor machine. A Z80A is used as the main processor, and comes with 4K of RAM. But the machine's graphics excellence stems from the use of a TMS9918A 16-bit chip, with 16K of RAM. This releases the whole of the 4K RAM area for use by the main processor, giving a main store capacity at least equivalent to that of machines with apparently larger store sizes.

And UK distributor for the M5, Computer Games, says that a 3½ inch disc drive will be available later this year, offering 100 Kbytes for £100. The Sord machine shows the Japanese variety in the offering of a Katakana character set, a feature not found on too many micros on the UK market.

The Duet 16 is handled in the UK by Lambert Microcomputers, headed by Michael Marks, who as MD of Ingersoll was responsible for the launch of Atari micros here.

"We've sold 40 so far without trying," he says. "We reckon on selling at least 1,000 machines this year."

SALES BRIEF

Honeywell network for the RAF

A NETWORK of Honeywell DPS6 minicomputers is being installed by the RAF to control supplies. The order is for five machines, but could be expanded to become one of the biggest DPS6 orders the factory at Newhouse, Scotland, has handled. The machines will be installed at RAF stations throughout the UK. The network is believed to replace a system based on two ancient ICL System 4 mainframes supporting hundreds of terminals.

£3 million deal

MINI-MAKER Gould has signed a ten-year agreement with information services company Geisec worth \$3 million in the first year. The deal is that Geisec will use Gould's Concept 32/27 computers in its worldwide teleprocessing network.

Foreign parts

INSTRUMENTAL Rentals, the UK hire firm specialising in peripherals and small micros, has placed two orders with foreign-owned companies. The largest, worth £250,000, went to Hewlett Packard for desk-top computers. The other is for £50,000 worth of printers from Mannesmann Tally.

Union choice

A SMALL Surrey software house has picked up a £50,000 contract from the Association of Scientific, Technical and Managerial Staffs for a new membership system to run on an ICL ME29. TLR Software was chosen for the contract because it has already supplied membership systems for five other trade unions.

Network upgrade

ELECTRICAL wholesaler British Distributing Company has ordered two minicomputer systems from UK maker of fault tolerant hardware Computer Technology. The company, which already has two C11 computers, is upgrading its real time sales order processing network, and plans eventually to implement C11's Momentum option which provides full real time transaction processing.

\$8 million drives

KENNEDY, the US maker of magnetic storage media, has won two big orders worth a total of \$8 million for cartridge motor drive and disc drives. Data Systems Design has ordered 4,000 Model 645 cartridge transports worth \$5 million for a Winchester storage system, and D. H. Minicom has lodged an order worth \$1.5 million for the cartridge transports, and the Series 7300 Winchester disc drive.

Council monitor

BUILDING maintenance at Surrey County Council will be monitored by computer after delivery of a £73,000 system from ABS Computers of Woking, Surrey. Based on an ABS MX10 mini, with the LADS software developed for a similar application for the Greater London Council, the package will keep a history of recent repairs carried out, and enable the council to estimate expenditure for the next five years.

Victory contracts

US MAKER of 16-bit micro Victory Computer Systems has ordered \$5 million worth of peripherals from three US suppliers in its Spirit and Power computer systems. DMA Systems of California is supplying 15 sets worth of 3½ inch disc drives, Quantum Corp. is supplying 15 sets of 5¼ inch disc drives, and CIE Peripherals will provide 15 sets of 5¼ inch disc drives.

THE TIGER FROM HH



The Right Product at the Right Price

The TIGER is the most unique and powerful microcomputer in its price range, exceeding the capabilities of any other micro in its class.

Designed for ease of use, convenience and to a price, TIGER will perform for a one person office, small to medium size business operations, and with its versatility and flexibility, the TIGER is ideal also for the large corporate user.

Comprehensive Software, Documentation and Support

Look at the TIGER specification. Impressive? Yes! But, all these features count for nothing unless you have reliable software, good documentation and the right level of professional support. TIGERBYTE® software includes Peachtree - one of the world's biggest and most experienced software specialists. In addition to these basic accounting and office productivity programs, TIGERBYTE® provides proven communications and graphics software. With excellent documentation and nationwide service back-up, HH provide the dealer with total product and support.

Designed for the Market

The TIGER was designed with the user in mind. Apart from its obvious aesthetically pleasing appearance and excellent use of ergonomics, the TIGER performs. The price and

performance meets the needs of the smaller business but, because of its built-in modularity, with the capability of access to Prestel, the TIGER is a powerful communications tool. Comprehensive interfacing ports mean TIGER can support advanced data communications to other terminals, minicomputers, and large corporate mainframes. With outstanding colour graphics, the TIGER is a compelling selling proposition.

HH - The Company

The TIGER comes from a well-established British company renowned for its high quality electronics and marketing skills. We have an impressive list of clients worldwide supported by over 600 dealers in 48 countries. We'll be here tomorrow.

The Future Today and Tomorrow

The TIGER'S design is based on a combination of some of the most advanced microprocessors available, providing significantly better performance than any other micro in its price class, so it won't be obsolete tomorrow.

Invest in the Future Today

Innovation, quality and service. That's HH. We are now looking for the best 100 dealers in Britain. That could be you. Contact HH now for a dealer pack.

THE COMPLETE TIGER DESKTOP SYSTEM - £2,795 (R.R.P.)*

End-user enquiries welcomed

HH Microcomputers
Viking Way, Bar Hill,
Cambridge CB3 8EL
Telephone: Crafts Hill (0864) 81140 (15 lines), Telex: 817816
HHELECG. Telegrams: Electronic Cambridge.

I am interested in a dealership. Please send me full details and contact me:

Name: _____
Address: _____

Telephone No: _____

CW26583

Smart, Low Cost and Compatible

The Zenith Z29 - a "smart" terminal for only £695* with competitive quantity discounts.

For more information on the Zenith Z29 terminal telephone: Geoff Stone, on (0452) 20481 or write to him at Zenith Data Systems, Bristol Road, Gloucester, GL2 0EE.

- Compatible with most ANSI protocol terminals including DEC-VT 52, Lear Siegler ADM-3A, Hazeltine 1600 and has many features of DEC-VT 100.
- Detachable keyboard, tiltable monitor (two positions), printer port and expansion sockets for 32K RAM or ROM.
- Keyboard controlled, parameter-driven configuration facility.
- Powerful editing capability, graphics and built-in diagnostics.



Users 'unaware' of standards issue

by Donald Kennett
USERS are planning their systems purchases on a short-term basis, unaware of the implications of Open Systems Interconnection standards, according to a study carried out for the Department of Industry.

Presenting the results of the study last week, project manager Jerrold Donington of Langton Information Systems said: "We take the view that organisations showed a lower level of awareness of OSI than was desirable."

In conducting the study, which began last September, Langton in-

terviewed 150 organisations of various sizes in government, industry and commerce. Academic institutions that have taken the lead in setting and using standards were excluded from it.

Representatives of the National Computing Centre and the DoI Information Technology Standards Unit, who introduced the subject of OSI standards to the audience of more than 100 users and manufacturers, repeated their constant plea for more user involvement in standards development and drew attention to the DoI's efforts to set up an IT

Users' Standards Association. But even Ian Lewis of BL Systems, a keen advocate of standards who based his company's communications strategy on their use, said that he found it hard to keep up with the technical details.

Users who are barely aware of the implications of standards are presumably going to find it bewildering as well as difficult.

Donington said that a major benefit from the study had been the exercise of expressing OSI standards concepts in terms that were meaningful to a wide range of users.

Last Japscam man faces sentence

by Howard Karten
AFTER pleading to contest, the last defendant in the Hitachi-IBM case is to be sentenced in mid-June. American Thomas Yoshida, a computer consultant, could face up to five years in prison and a \$10,000 fine for the charges of conspiring to transport stolen secrets.

However, this latest action will not necessarily end the so-called Japscam case. Although two Hitachi men and the company have pleaded guilty earlier this year, negotiations between the US Justice Department and the Jap-

nese government regarding extradition of nine other Hitachi men are continuing.

Yoshida's "nolo" plea came on May 13, only a few days before Yoshida's trial was scheduled to start. At that hearing, Federal Judge Spencer Williams unsealed 13 hours of video and audio tapes and transcripts of the tapes made during the FBI's undercover operation.

The tapes are said to show that Yoshida and the other defendants were apparently believed the FBI totally. In addition, the tapes

are said to be quite full of irreverent American humour, with FBI undercover operatives repeatedly referring to Iso Ohnishi, a top Hitachi official, as "Izzy," and good-naturedly disrespectful requests to "say hello to the emperor."

The tapes reveal that the Japanese believed that when IBM introduced new technology, its salesmen had it "easy" and could rely on sharply limited competition for at least 18 months. It was this last time that Hitachi apparently sought to cut by

NCC carries all micros before it

Robert Parry reports from the National Computer Conference

IT'S big, it's brash and it's blazing - but 130,000 people can't all be wrong. For most in the computer business, companies and individuals alike, the US National Computer Conference is the place to go to see and be seen.

This year the circus returned to Anaheim in California, sprawling across 320,000 square feet of convention halls, tents and hotels within hailing distance of Disneyland.

At times the conjunction was apt enough, with the Magic Kingdom's Fantasyland and Tomorrowland seeming fit descriptions of what was going on at the NCC - not to mention the cowboys of Frontierland.

But unlike the unreal world of Disney's creation, the unreal world of the NCC had few clear themes. Companies offering portable microcomputers stood hard by software manufacturers and software suppliers across the aisle from those with high performance Winchester or communications products.

At best it was tiresome, at worst overwhelming.

And, with a handful of exceptions, the NCC is no longer a place for major product announcements. These get lost in the morass of first showings of previously announced products and a rash of micro introductions, or if from start-up companies get lost in some out of the way corner. The booths at the show are allocated on a points system, so those that have amassed brownie points by showing here before get the choice spots.

The security blanket comforting this cosy computer club had a couple of discernible threads. If you still needed to be convinced that micros were moving portable, IBM-wards and linking into networks, this was the place to be. If you doubted the future for smaller hard and floppy discs, the plethora of half-height drives and smattering of three-and-a-half-inch units should have settled your mind.

It was not a show to see mainframes, despite the brace of major announcements from IBM and NCR, nor was there much in the way of software, except for a handful of mainframe-to-micro packages.

But if it was micro, and you could carry it, it was here.

Japan stole the scene with newcomers to the portable micro market. Sharp's new baby, the PC5000, left no doubt as to its portability - 11 pounds in weight and battery operated, with an

eight-line liquid crystal display and bubble memory cartridges for mass storage.

It will come in the autumn, with optional printer and autodial modem - "all a person needs in a mobile office," claimed US Holding - plus applications software from an as yet unpicked software house to run under MS-DOS on the 8085 processor.

"Move over transportable, here comes portable," added Holding of this truly portable machine, very reminiscent of the US-made Gavilan launched earlier this month. Gavilan too was at NCC, attracting admiring crowds.

Toshiba brought in a "portable" version of its T100 microcomputer, a repackaging job on the established desk-top machine. With its clip-on LCD, the same basic unit is cosseted in foam inside a briefcase, with an acoustic coupler but no printer or discs. In M23 portable.

The third new Japanese take-away computer was the smallest -

NOT all the new machines were micros. Gould SEL had three new systems stretching from a desk-top micro to a virtual memory mini, the Powerstation series, and for those fed up with 8, 16 or 32 bits, Symbolics had a 36-bit tagged architecture Lisp-based computer aimed at symbolic processing in artificial intelligence applications. And Intel came out with enhancements to its System 2000 database processors, while graphics specialist Magitek showed a high resolution monochrome version of its Whizzard workstation.

There were new US portables. Columbia's IBM PC look-alike appeared in a transportable guise - the Columbia VP, one up on latest borne, which was showing its Executive machine. But the Columbia VP was portable only in

packet size almost. The Canon X-07 comes in a unit the size of a paperback, with a four-line liquid crystal display and is 280 driven. Memory can be expanded from 8K to 24K of RAM through memory carrying battery backed CMOS RAM chips. It drew a lot of in-meeting heat in the tent area and the lack of English language documentation.

There were new US portables. Columbia's IBM PC look-alike appeared in a transportable guise - the Columbia VP, one up on latest borne, which was showing its Executive machine. But the Columbia VP was portable only in

that the keyboard hinged up to cover the drives and the medium-sized screen and the box had a carrying handle screwed to the back.

Desk-top micros showed too. Strong Japanese emphasis too. Sord came in with a dual processor 8/16-bit using Z80 and 68000 processors. It will run standard software from Sord's M23 under CP/M-80 or 16-bit software under CP/M-68K. Unit on the 68000 processor will come in the autumn.

To hedge all bets, an 8088 plug-in module is available giving access to MS-DOS applications.

Fujitsu was also aiming high with its 8/16-bit Micro 16 Personal Business Computer. This Z80/8086 machine was shown with a memory board carrying Fujitsu's 256K dynamic RAM chips - giving a megabyte of memory on the one board. It will be deliverable this winter.

Meanwhile Mitsubishi spread itself

while, with a distributed system, calls DR5816. Up to eight 16-biters built around 8086 chips can be linked via MP/Net and an "enhanced" MP/MS-86. Networking featured heavily in offerings from two US companies. Wang brought in a Local Interconnect Option to allow clustering of its Professional Computers through a high speed local area network with file and resource sharing, while Altos and resource Ethernet to its 586 family.

This will come in June as a plug-in communications board carrying Intel's 16-bit 80186 processor and Ethernet chip set. As well as added, plus faster running of 2780, 3780 and 3270 emulation software and an increase from five to nine users. Altos's own in-house LAN Altos-Net, presently an implementation of 3Com's U-Net, will appear in an enhanced second generation in the summer.

"With all these networking and communications facilities, the 586 offers a powerful but affordable solution for smaller and mid-sized businesses, as well as Fortune 1000 companies," says Altos president David Jackson. He reckons Altos to be the foremost shipper of Xenix systems now. (Xenix is the Microsoft implementation of Bell Labs Unix operating system.)

Altos is now shipping so many systems across its range, most of them multi-user, that it has branched out into terminal manufacture on its own preferring to sell turnkey systems with all parts carrying the Altos brand rather

than selling TeleVideo terminals with Altos' own processor boxes.

All this emphasis on physically smaller machines, though not necessarily less powerful ones, was reflected in the mass storage devices that abounded. Half-height drives - with both hard and floppy discs - were round every corner, as were ever-greater capacity 5 1/4-inch Winchester squeezer hundreds of megabytes into standard form factor units.

Other manufacturers are getting near to bringing out units with this form factor - popularised by the booming microfloppy drives in all their variety - and Tandon was showing to select customers. Seagate and Miniscribe are also close on the running.

But the star of the show on the Winchester front was undoubtedly Control Data's Cricket 3 1/2-inch drive carrying 5 Mbytes of formatted data. It uses plated media and thin film heads, and like the

then selling TeleVideo terminals with Altos' own processor boxes.

Winchester front was undoubtedly Control Data's Cricket 3 1/2-inch drive carrying 5 Mbytes of formatted data. It uses plated media and thin film heads, and like the

Winchester front was undoubtedly Control Data's Cricket 3 1/2-inch drive carrying 5 Mbytes of formatted data. It uses plated media and thin film heads, and like the

Winchester front was undoubtedly Control Data's Cricket 3 1/2-inch drive carrying 5 Mbytes of formatted data. It uses plated media and thin film heads, and like the

Winchester front was undoubtedly Control Data's Cricket 3 1/2-inch drive carrying 5 Mbytes of formatted data. It uses plated media and thin film heads, and like the

Winchester front was undoubtedly Control Data's Cricket 3 1/2-inch drive carrying 5 Mbytes of formatted data. It uses plated media and thin film heads, and like the

Winchester front was undoubtedly Control Data's Cricket 3 1/2-inch drive carrying 5 Mbytes of formatted data. It uses plated media and thin film heads, and like the

UK firm put on a brave show

THE British showing at the NCC was small enough to be almost invisible. If you were not a Micro Focus fan, you would have missed it by having two booths through the US branch of British computer sales on the Business Equipment Association joint stand.

Things went well, the marketing manager Peter as he took time off from promoting the company's Coloh running on the IBM. Having the two sites separated - one was in a location holly while the other was in the tents - meant a good chance of at least being noticed by many of the punters.

Being noticed by all the Future Technology Show wanted, even though it was larger than expected stand, the absence of exhibition space John McNulty.

The company was pushing OEM operation, built around 16-bit micro architecture as under the Office and Electronic Machines Orion label.

"We didn't pull in the people just after Jellon," technical director Martin Healey said. "We had to have picked up more European leads than at an exhibition this side of the Atlantic."

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

Flow over were the top managers and directors. Then IBM, who found out the same sort of thing with good leads from Scandinavia and Germany as well as France for its streaming tape products.

System/36 in UK - but not all of it

by Andrew Thomas

IBM's long-awaited System/36 has finally arrived in the UK - or most of it has. For the US version of the minicomputer, designed to bridge the gap between the System/34 and System/38, has facilities which are not yet available here.

But UK software houses were let in on the secret early. Launched at the NCC last week, the US System/36 boasts colour graphics on the 5292 Model 2 bit-mapped colour display. UK users have to make do with the alphanumeric Model 1. British PC owners will have to wait for the chance to use their micros as terminals to the System/36, whereas their American cousins can buy the necessary adaptor and emulation software now.

And there are other differences in the two announcements. In the US, intermediate and large systems product marketing director Bill McCahan announced that the System/34 was to be phased out. "It will be in limited new production from today," he said.

But an IBM spokesman in the UK claimed that there were no plans to scrap the System/34, which has about 3,000 UK sites out of 100,000 installations worldwide, and that the two systems were complementary apart from some overlap at the lower end of the System/36 range.

The new machines are being sold in the US as having more application programs than any other small IBM system to date, and offer 128K to 512K of main store and disc storage of up to 400 Mbytes. Up to 30 local and 64 remote terminals can be supported, and remote fault diagnosis is available for the first time.

System software comes in the form of the System Support Program (SSP) which is heavily menu-driven. System/36 machines for Europe will be built at Santa Palomba in Italy, and are due for first shipments in July (US) and September (UK).

First impressions of the System/36 are favourable. John Priestley, marketing manager of Hoskyns' banking division, is enthusiastic about its potential.

"The System/34 was IBM's best-ever selling machine in terms of boxes sold," he said, "and these people will be looking for more facilities. The System/36 is twice as fast at the same price."

"They've taken lots of other manufacturers' ideas and put them in one box," he continued. "It takes the old GSD (General Systems Division) chunk of IBM into the future, and avoids the big jump from System/34 to System/38."

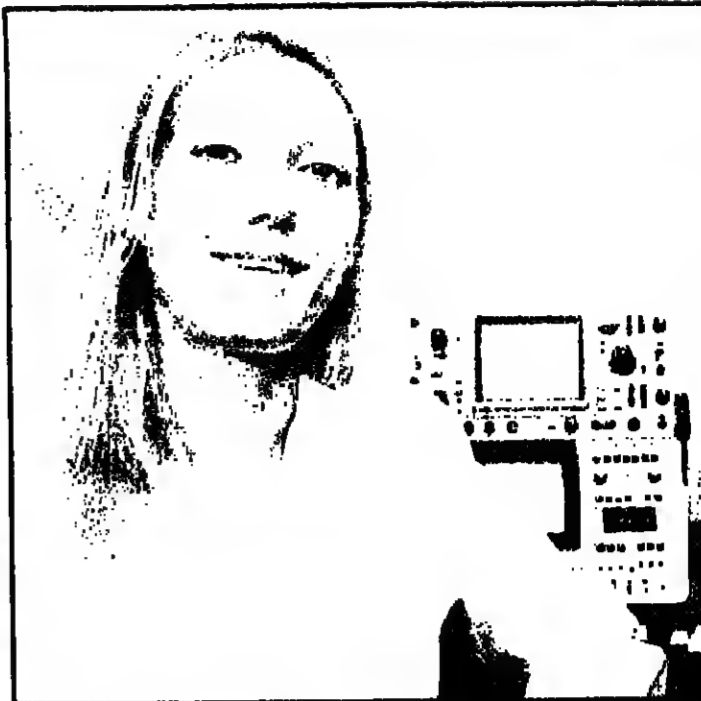
"It's good news for us, and aggressively priced."

An unusual step for IBM was the conversion of Hoskyns KIBS banking package to System/36.

"They couldn't give us a machine to do the conversion," said Priestley, "so we gave them the code and they did it for us in two days. I'm sure it wasn't just for us."

But IBM refused to say if it intended to help all users in this way. One user keen to get its hands on a System/36 is Wilkins Computer Systems. Within moments of the launch announcement, Wilkins announced a deal for the first UK system.

One user keen to get its hands on a System/36 is Wilkins Computer Systems. Within moments of the launch announcement, Wilkins announced a deal for the first UK system.



GORDON... "Too much stress on Ada as a defence tool".

Intel picks small UK software house to market Ada compiler

by George Black

INTEL'S Ada compiler for its 432 chip set is being marketed in the UK by High Integrity Systems, the 11-strong Hertfordshire software house - and two other Ada compilers will be introduced by Intel in the next 12 months.

Those under development will produce target code for Intel's 186 and 286 chips and all three are to be put through validation tests by the US Defence Department's Ada Joint Program Office.

So far no Ada compiler has been placed on Ada as a defence tool," she commented. "I would estimate that defence might account for 30% of the eventual market, but another 30% will be taken up by other real time systems and maybe 40% by new types of application altogether."

Many of the inquiries were related to engineering, robotics, process control and CAD/CAM enterprises.

"There are going to be quite a few Ada compilers available and their potential users are very sophisticated people who won't be hoodwinked," she said.

"We've taken Unix further than Bell - introducing five menu personalities. We allow five different levels of access to the system ranging from the first-time user to the experienced systems programmer."

And Offord points to NCR's hosting the inaugural meeting of the European Unix user group as proof of the company's commitment to the operating system.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

NCR Unix entry is on the way

by Andrew Thomas

NCR's entry to the Unix market is coming to the UK. The Tower 1632, launched in the US last November, is scheduled for volume deliveries in the autumn, and trials are already underway in the North of England which could lead to an order for 300 systems.

The Motorola 68000-based Tower gets its name from its vertical housing which contains the processor, floppy disc drive and Winchester. Additional disc store is housed in a second cabinet which stands alongside the processor.

Up to 16 screens can be supported, although product manager John Offord says that the system is aimed at the four to eight screen user.

And the decision to go for Unix was on easy one, says Offord. "Unix is the most powerful and versatile operating system available today, and its industry standard for computer science departments. There's a terrific pool of expertise on the way."

One of the criticisms often levelled at Unix is its user unfriendliness.

"It's true that Unix was originally developed by Bell Labs for its own use by computer experts," says Offord. "But it's easy to write a new shell for the system in order to provide a more friendly system."

"We've taken Unix further than Bell - introducing five menu personalities. We allow five different levels of access to the system ranging from the first-time user to the experienced systems programmer."

And Offord points to NCR's hosting the inaugural meeting of the European Unix user group as proof of the company's commitment to the operating system.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

A typical entry-level Tower configuration, with 512K of main store, one Mbyte floppy discs, 30Mbyte Winchester, one terminal and the operating system has a price tag of around £12,000. A maximum system with two Mbytes of main store and 232 Mbytes of backing store plus streaming tape and printer will cost the best part of £50,000.

THE BIGGEST STAR IN PERSONAL COMPUTERS IS THE SMALLEST

Weighting in at only 20lbs the Hyperikon sits on the smallest desk. Yet it offers 256Kb memory - four times more than most. It provides a clear, crisp display on a seven inch screen. And though IBM PC compatible, it's cheaper - and has a RAM disk, which the IBM PC hasn't. For more information fill in the coupon.

Hyperikon
the world's most powerful portable computer

GULFSTREAM TECHNOLOGY LIMITED Unit 3A, Tunnel Estate, 726 London Road, West Thurrock, Grays, Essex RM16 1LS. Telephone: 04026 4926
Please send me full colour brochure of the Hyperikon Portable Computer
A member of the Bytec Group

My name is: _____
Address: _____
Company: _____
Telephone: _____

Software - where the dollars are

SOFTWARE made it at last at this year's National Computer Conference in Anaheim. The keynote address at this tenth NCC came from MSA's John Imley - the first time a representative of the software and services industry has been picked for this honour.

In his hour-long performance, packed with slides, films, a satellite link to Washington, a concert violinist and above all jokes from the fast-talking Imley, there were two main messages - that software is where the money lies, and America needs a national information policy.

"People are thinking soft," said Imley. "There is a move to connect computers with that connection is software to software. The software area is where the dollars and the value lie."

The micro's role is that of personal computer, intelligent terminal. The term 'personal' or 'micro' will be known as the workstation computer whose value will be the software, and the mainframe power will become a commodity. Central computers will just be data sources - nine-tenths of the computing will be done at the workstation area.

But if the US is to control the "great imperative" Japanese in this computer age, it must have a national strategy, and must recognise the information technology is a competitive weapon to be wielded at board level, not hidden away in the back office, Imley added. He called for a federal agency to be set up to speak on information issues.

The importance of educating the coming generation should not be forgotten. The young need access to computers, and their education need to be educated. "We must find the gifted children, who chip and play like a violin."

And it was with violin playing - a rendering of "The Impossible Dream" - overlaying Imley's showman's wit, that he brought the audience to its feet. He applied his parting shot: "The survival of our industry is you, the touch of a master's hand."

Over the top he might seem to be a joke, but it was a timely performance, and the 2,000 delegates who made a show of half-built hotels and parking lots in the morning California sunshine loved it.

Network Technology takes aim at Europe

by Nuala Moran

NETWORK Technology is aiming at Europe with its digital networking and interfacing products. The company is to establish distributors and OEMs to Europe in the marketing of its 3703 SNA network integrator. This is designed to concentrate clusters of ASCII and biphase devices over a single line to an IBM or compatible host via a 3705 communications processor.

In charge of the NTL expansion will be Mark Ridgway who was recently appointed European operations manager. Ridgway joined NTL from ICL where for

the last 18 months he was setting up and managing Trader Point, ICL's scheme for working more closely with dealers and software houses.

Asked about his decision to join NTL, he said: "NTL has a great growth potential in an area where I think the industry will develop strongly - that is, networking."

Commenting on NTL's proposed expansion, Ridgway said: "The distribution system will be set up in Europe in the next six to nine months. We want to move rapidly as we recognise that there is a great deal of interest among IBM users."

Commenting on NTL's proposed expansion, Ridgway said: "The distribution system will be set up in Europe in the next six to nine months. We want to move rapidly as we recognise that there is a great deal of interest among IBM users."

July 4th 1983
will be Independence
of America Day

FOR SALE
DEC
APPLICATIONS
PROGRAM
PACKAGES

THIS IS THE DEAL
OEM's and System Houses
Don't re-invent the wheel.
Call Allegro on 04893
6266 & get your DEC
systems running now.
• applications packages for all
PDF and VAX range computers
• proven packages in current use
• internally flexible, integrated suites for
commercial applications
• the source code so you can customise
to your needs
• demonstration discs and initial training
• and we'll sell you on an extended
payment plan with no royalties

Allegro
ALLEGRO COMPUTER
SERVICES LTD
Abbey Mill,
Bishop's Walkham,
Southampton
Telephone: (04893) 6266
AUTHORISED
digital
COMPUTER DISTRIBUTOR

Allegro Computer Services Ltd
Send me details on your DEC
applications program packages.
Name: _____
Company Address: _____
Tel: _____
Allegro DEC packages are sold under a
licensing agreement.



Saudia flights information work for Cord.

share in Allegro Ireland, the remaining 40% still being in the hands of ex-Allegro directors.

"Of course, we are interested in taking a greater controlling interest in the firm but we don't want to go at it like a bull in a china shop," said Penney.

Last month Cord took a 60%

Finance men put £400,000 on Pam

by George Black
VENTURE capital of £400,000 — probably the most backing ever for a British businesswoman in computers — is behind Pamela Geisler's new enterprise.

The ex-Zilog marketing manager is involved in setting up Sphinx, a software marketing company, in Maidenhead, aimed at getting as much as possible of the best Unix and API systems under one roof.

"We want to assemble a range of products — tools, languages and applications — for the new micros which are going to be most popular," said Geisler.

Talks are going on with a number of fairly new and small companies which are strong on development but weaker on promotion. Geisler sees Sphinx's role as shouldering the marketing responsibility and leaving the systems

people free to do what they do best.

Among those taking part in the negotiations are Precision Software, Runt Computers, Santa Cruz Operation, Human Computing Resources of Toronto, Dyadic API, the National Westminster Bank subsidiary Software Ireland, and Silicon Valley's Yates Ventures.

Geisler spoke of the difficulties of obtaining start-up capital for high technology projects.

"It underestimated — it became quickly obvious that it was going to be much tougher than I anticipated. Many of those I approached made nice noises but weren't interested in being in at the beginning. Mortgage your house and get on the road, then come back and talk — that was the message."

Most financiers only wanted to be connected with conventional,

slow-growth concepts, she said. "And one at least didn't like the idea of a female driver."

The possibilities were narrowed down to four who had "the right attitude". "I wanted a partner, not just an investor — someone with the American style of no particular rules and a lot of co-operation".

In the end two of them combined to make her an offer — they were the New York-parented Alan Patricof Associates, with considerable high technology schemes on both sides of the Atlantic and Abingworth Management, a wholly UK-owned high risk investment company.

Both were early backers of Apple. APA has recently put its money into Future Computers' British answer to the IBM-PC. Abingworth is linked to Kean Computers, which markets Unix and Pictus hardware running on



GEISLER... "One financier didn't like the idea of a female driver."

der Unix. Sphinx starts life with eight staff to be increased to 30 by year-end, according to Geisler.

The main thrust will be towards Unix operating systems and applications. Sphinx has sole rights to Yates products, and sees its Yates

presence in Silicon Valley as crucial to watching the progress of the market. The company is planned to go public within five years; its backer Abingworth is due to go public itself in the near future. There will be no new program-writing, but much effort on adapt-

ing products for running on machines and interfacing with other environments such as CP/M. Sphinx plans to take on low-end products from the US firms Santa Cruz Operation and HCR, Toronto, which have specialised in Unix systems on DEC equipment.

NCC cuts demand by pushing up fees

by Nuala Moran
THE National Computing Centre's Microsystems Centre is boosting its charges to cut demand. Consultancy fees will go from £290 to £325 per day or £45 to £65 per hour.

Philip Virgo, manager of the centre, said he thought this would ease the problem which the centre has finding consultants capable of giving objective advice. At the same time he is hoping the higher fees will increase cash flow so that the centre can train more consultants. At the moment there are four trainees who will be trained by this autumn.

According to Virgo another effect of the increases will be that people using the consultancy service will do initial research for themselves. The centre's consultancy will now be used to "finalise the short-list of suppliers and selection criteria rather than to answer basic questions well covered in our checklists, publications/packages and directories or which our supervised trainees and secondees

can handle equally well," said Virgo.

To support this change the cost of audio tapes has been reduced by 50%. Virgo said these answer most of people's initial queries which they would otherwise address to a consultant. Also, workshop services will continue to be offered free. This allows visitors access to about 1,000 different packages and a dozen machines so that they can see if a particular package will work against their test file.

Demand for the Microsystem Centre's services has continued to grow during the two years since it was set up. In the last financial year, the centre, which is based at New Fetter Lane in London, helped 3,000 visitors to select over 5,000 systems.

Slightly over 50% of the visitors were small businessmen such as painters and decorators or small shopkeepers, wanting to know whether or not it was worth buying a machine.

About 25% were from medium sized businesses choosing between



VIRGO... Hoping to increase cash flow.

a single machine, network or multi user system. The rest of the centre's visitors were a mixture of managing directors making decisions on company policy, consultants doing their market research, and management services and data processing departments wanting to make bulk purchases.

The centre was set up in April 1981 with funding from the Department of Industry, to provide advice and help to small businesses wishing to start using computers. It does not receive an operating subsidy from the government.

UK firms take Apple CAD to US

by Philip Hunter
A JOINT UK venture has been launched in the US to exploit the huge North American market for graphics design software based on the Apple microcomputer. The aim is to sell Apple-based computer aided design systems developed by the small London-based company Robocom with marketing support from the larger UK-owned electronics company Eurotherm.

The new company will be called Chessell-Robocom, and will at once use the distribution channels already established by Chessell, Eurotherm's operating subsidiary

in the US. Eurotherm has also bought a 25% share of Robocom for £150,000, and offered a £100,000 interest free loan to help the smaller company's research and development program.

The formation of the US company has been timed to coincide with the launch of Robocom's next product, the 1000 series of design systems based on Apple II computers. Robocom launched its first product, Version 1, last May, and has so far sold 1,100 systems, 900 in the UK.

"We hope to push our UK sales to 3,000," says managing director Peter Bailey. But the US market is

10 times bigger, with over half the world's 750,000 Apples, he adds. The system acts as a graphic word processor with the ability to build libraries of drawings, to recompile designs, such as layout layouts, as they are made.

The software, with a hardware controller, costs £445. But Bailey says that the complete turnkey system, with computer and high resolution printer, costs upwards of £4,500, have sold better in the UK.

But in the US, with so many Apple users already, the big market is likely to be for the software alone.

BT Pactel link for comms service

by George Black
BRITISH Telecom is going into partnership with systems house Pactel to offer a business communications service to international corporations.

The service is to be masterminded by British Telecom International's Jim Pickard and Pactel's Peter Rooms.

"We'll be looking at users' problems right from one end to the

other," said Rooms. "We're trying to fill a gap which BT hasn't particularly attacked in the past and especially not in the international field."

One of the main objectives will be to give big companies a single contact point through which to tackle their communications problems. In the past many of them have had to deal with half a dozen agencies in different countries —

"we'll be cutting through the bureaucracy and making this easy for them," said Rooms.

The joint venture — which is yet to be titled — will provide an all-round service, beginning with consultancy and offering both hardware and software.

Rooms said they were already talking to a number of multinational firms about possible contracts.

Microdata.

Since 1969, CMC has enjoyed continual success in the British computer sphere, first as a pioneer of key-to-disc and data entry systems and subsequently as a designer, manufacturer and supplier of advanced local area networks, easy-to-use relational database mini and supermini computers, and innovative software tools. For the past five of those fourteen years CMC has been a subsidiary of the

worldwide Microdata Corporation. The association has enabled CMC to radically widen its horizons and manufacture in Britain for world, as well as British, markets and to collaborate on international high-technology research and development projects.

Now the time is right for CMC to integrate more fully with its multi-national partners through whom a large and increasing proportion of output is exported. From now CMC's manufacturing and research interests will

become Microdata UK Limited and CMC's sales and marketing organization will become Microdata Information Systems Limited.

Little else changes: we are still 1,000 Britons, we are still expanding at 35% per annum, we are still net exporters earning foreign currency, we are still creating jobs (200 last year) and we still have a wealth of expertise of special relevance to the

computer needs of the public service sector, Times top 100 companies, and, of course, export. So from now please call us Microdata.

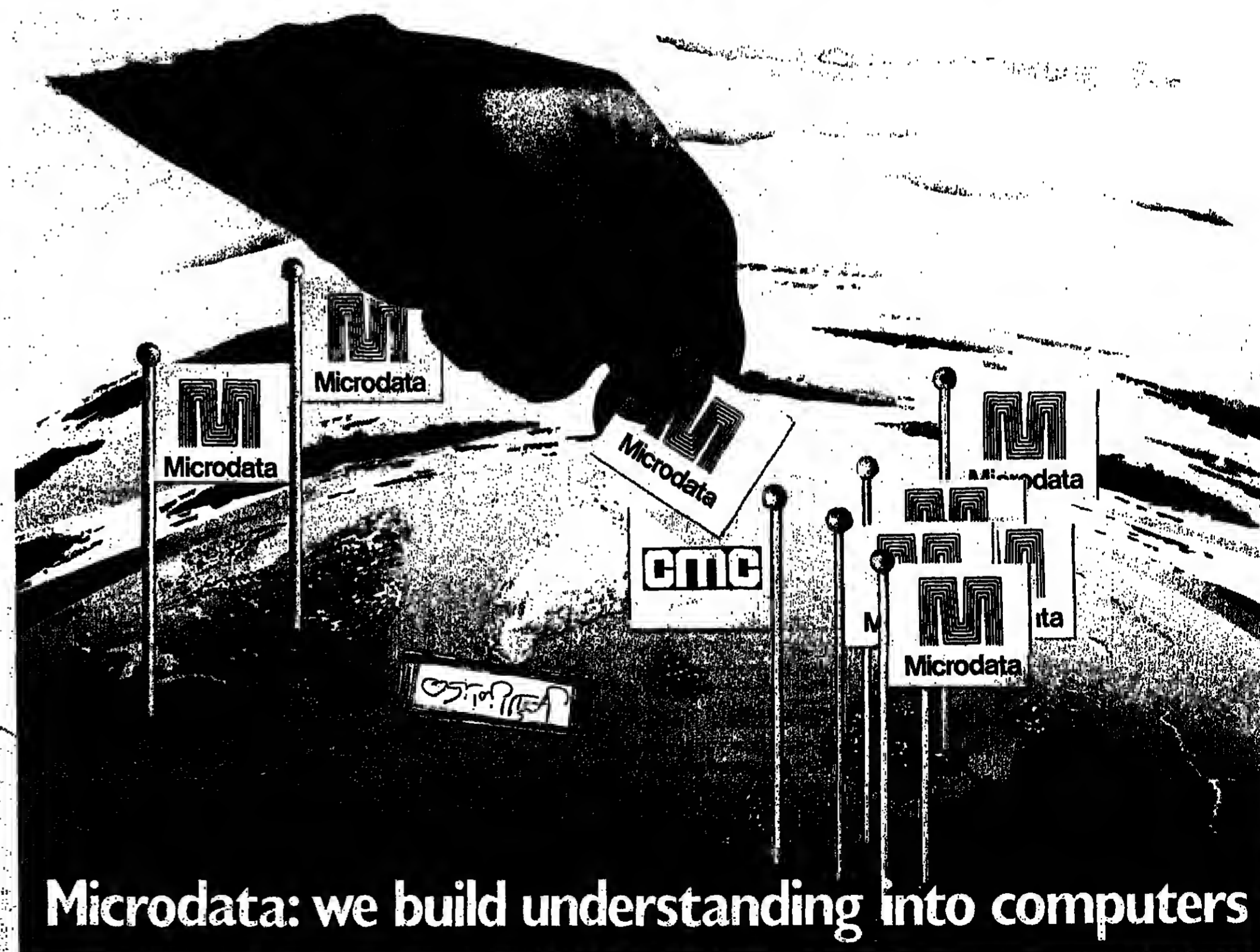
And, please, call us.

Microdata

Maylands House, Maylands Avenue,
Hemel Hempstead, Herts. HP2 4RL
Tel: (0442) 61266

Microdata: a McDonnell Douglas company.

A new way to say CMC



Microdata: we build understanding into computers

Do you use...
BACS, EPOS, Typesetters, CNC,
Software Distribution, Dataloggers?

If so the Cratie CS6 Digital Cassette Transport is an ideal data interchange device for you.



- * ECMA 34 / ISO 3407
- * International Standard.
- * Easy to Use.
- * Easy to Interface.
- * Fast & Reliable.
- * Cost Effective.
- * Field Proven.

Phone: Baxon Greenway today (04536) 79821.

Cratie Cratie Electronics Limited

Cost-Effective Communications

A COMPLETE RANGE OF X25 PACKET SWITCHING EQUIPMENT FOR PRIVATE NETWORKS AND OR CONNECTIONS TO PUBLIC NETWORKS

X25 To ASYNC
X25 To IBM 3270
X25 STAT MUX
X25 SIMULATOR TESTER
AND MONITOR
TRIPLE X PADS

Dynatech-Nolton

Commitment in Communications

Nolton Communications Ltd
Fieldings Road, Chesham
Herts, EN8 9TL
Tel: 0992-33555. Telex: 28952

TO ALL MICRO SOFTWARE AUTHORS

Sior Computer PLC, the major supplier of mini systems to the accountancy profession, have introduced an exciting new way to distribute micro computers.

Called the 'STAR PARTNERSHIP' the scheme combines the strength of an established computer supplier with the skills of the practising accountant. Many of the 700 accountancy firms on STAR's books have already joined the partnership and many more have expressed a serious interest since it was launched in April. Under the partnership, Sior provides and source hardware, software, maintenance, and support whilst the accountants recommend the systems to their clients.



STAR are now interested in expanding their micro software library and would like to hear from authors who have software available for the SIRIUS micro. In particular software is sought for specialist vertical markets.

Please write or phone
IAN WILLIAMS, Project Manager

STAR COMPUTER GROUP PLC, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Wang on target for a bumper year in Britain

by John Riley
WANG UK is well on track for a bumper year, claimed managing director Ian Diery last week. Revenue for the first nine months of the current fiscal year is about 50% up on the same period last year and Diery expects the total revenue for this year to the end of June to be £32 million.

He sees this trend continuing as his office automation strategy moves into top gear. "The race for the desk is on," he explained, "and Wang is well placed to take the lead." Diery believes that the key to success is to get personal computers into offices as quickly as possible.

That is why he has re-organised his selling strategy, has lined up 30 dealers to sell his Professional Computer, and signed an agreement with Peachtree for applications packages to go with them. About 40% of his 600-strong workforce is in customer

support engineering.

"We are over the hump in engineering and are in good shape for the next three or four years," said Diery. "Our managers are mature — the top five Wang UK managers all have over five years' experience with the company."

But on the minicomputer side there has been a slowing of Wang's programme to wean users of other manufacturers on to Wang equipment. The company's drive to sign up Digital Equipment OEMs to help with package conversions and its move to snatch IBM System 34 users have both moved more slowly than expected.

Diery has had difficulty finding suitably specialised DEC systems houses for the conversions. "The houses we have signed up are significant with the right specialisation," he said, "but we had hoped to have more lined up. We have been surprised that many of the systems houses we looked at were

too general in their approach."

His search began nearly two months ago as part of his strategy to siphon off DEC users to the Wang VS range of minicomputers. So far three to four DEC systems houses have been signed up, but are not being named for the present. "We'd prefer to wait for the software to be converted first," said Diery. The key vertical areas he is concentrating on are insurance broking and banking.

Wang's move to get IBM System 34 users to move over to its VS Series of minicomputers with its System 34 compatible compiler has gone more slowly than hoped. This has been caused by a combination of technical problems, fierce IBM resistance, and a wait-and-see attitude by IBM users. Although it has won 15 full conversions so far, Wang UK has not yet broken into the major multiple CPU user base, such as banks and insurance.

"We have cracked multi-CPU deals in the US," said Diery, "and we are working hard on that front in Britain. Conversion is a complex business because of benchmarking, but we have set up a conversion centre in Isleworth and things are well in hand. We'll see a range of conversions by September."

There have been technical difficulties, particularly with screen handling. Extra conversion has been needed to provide utilities for converting data files. On the other hand, there have been few problems with batch handling. "Although the screen handling has been difficult, we have had a tremendous hit rate — almost 100% — with our RPG compiler for batch systems," said Reg Broughton, Wang UK's director of marketing support services.

Wang is getting what it considers surprisingly stiff resistance from IBM which is battling to keep its System 34 users.



DIERY... "Race for the desk is on — and Wang is well placed to lead"

Reuters aids banks to clear the clutter

by Philip Hunter
BANKS and money dealers can now get at their different sources of computer-based financial information from a single keyboard designed by Reuters, the world news organisation.

The keyboard, with switching equipment, is aimed mainly at dealers who already use Reuters' worldwide communications network for access to various types of financial information such as exchange rates and stock market prices.

"Typically you need one terminal for each activity," says Reuters assistant sales manager Peter Mann. "There may be six or seven services altogether."

The new keyboard will enable the dealer to clear the clutter of hardware on the desk, and control all the data processing from a single workstation. "A user can look at some information, and then switch to an Apple computer to do some calculations," says Mann.

The dealer can also make instant comparisons between current money market rates, and his own forecasts held on an internal database.

Reuters has 34,000 sqm installed for its financial trading services at banks and dealers in 69 countries. Users of its new keyboard can pass information to each other with a guaranteed response time of four seconds.

Reuters has also developed a "calculative datafeed" that also external data to go straight into in-house minicomputer or mainframe for calculations.

With the new keyboard, a user can switch from an external service straight into the in-house computer to examine the result of almost instant calculations and statistical analyses of the raw information.

Although Reuters' keyboard is exclusively for financial applications, the principle could equally well be applied whenever quick decisions have to be made from several sources of information. "But we are not interested in opening up a new market," says Mann.

Reuters was the first company to offer international computer-based financial information when it launched its commodities and foreign exchange service in the 1970s.

France takes just 5% of electronics market

by Jack Gee
FRANCE has a puny five per cent share compared with the US' massive 47 per cent slice of the world electronics market which was worth \$330 billion last year, according to a report sponsored by the French Ministry for Industry and Research. But the French are making major breakthroughs with sales of computer technology and services.

The report is the result of a survey by the French Telecommunications and Electronics Council which has been set up by the Ministry to encourage co-operation between France and the US in the framework of the five-year French national electronics plan.

The report, which is available from France Cable et Radio, 42 Rue des Jeuneurs, 75002 Paris at a price of 200 francs, gives a detailed account of differences between the electronics industries of the two countries and overall world trade in these products.

The French Telecommunications and Electronics Council is the

French equivalent of the US Electronics Industry Association. It is just as busy with its efforts to promote French electronics as they are in the US. The council's main task is to find French-made displays are widely accepted among and used when they're in defence, communications, information retrieval, transport, office automation or other important fields.

For the coupon for literature, contact: Ferranti Computer Systems Limited, Argus Product Sales, Wythenshawe, Manchester M22 5LA. Telephone: 061-499 8355. Telex: 668084.

Please send me the full scenario on FT80 Terminal ☐
FT80 Control Terminal ☐ Full Curvilinear Graphics ☐
NAME _____
POSITION _____
COMPANY _____
ADDRESS _____
CIVIL _____

Ferranti Computer Systems Limited, Argus Product Sales, Wythenshawe, Manchester M22 5LA. Tel: 061-499 8355 Telex: 668084.

FERRANTI
Computer Systems

SOFTWARE FILE

Synapse supports the borough

SYNAPSE Computer Services of Chesham, Bucks, is giving software support to the London Borough of Barking and Dagenham, to help overcome problems in upgrading IBM DOS/VS to VSE on the council's 4331 mainframe.

The authority's DP head, Paul Offen, said the decision to seek third-party help followed 18 months of hassle and rapid progress was now being made. Technical staff on the borough's payroll were benefiting from working alongside the agency experts, he added.

BP signs Omega

BP COMPUTING subsidiary Scicon has signed up the Omega Group of Cleveland, Ohio, to market its computer-based training aid Cavis in the US. The computer audio-video instruction system was developed at the Sussex Institute of Higher Education with Scicon support.

Legal sickness

PETERBOROUGH Software has updated its popular Unipersonnel package with an online inquiry language, says the company's product development manager Nick Cook. Legal requirements of statutory sick pay are incorporated in the latest version.

SAS for Ramis

MATHEMATICA has linked its successful Ramis-11 database management system to an SAS interface. Ramis users are promised a user-friendly tool to translate data into the format needed by the SAS Institute's statistical analysis software. The systems run on IBM and plug-compatible mainframes under VM/CMS and MVS/TSO operating systems.

Let's crunch

US ARRAY processor specialist Floating Point Systems has brought in an enhanced Anst-77 Fortran compiler, to speed number-crunching jobs. FPS-164 users who have subscribed to the software maintenance option get the update free.

Pentagon link

PENTAGON Business Systems of London has agreed with MGB, Haniel Hemphries to work on an interface between its order processing system Ordermaster and MGB's ledgers. A joint development team aims to complete the system for ICL ME29 mainframes by September. MGB ledgers are one of the products listed by ICL in its new Business-29 collaborative venture.

VisiCorp buys

VISICORP has strengthened its bids to link IBM mainframes to the PC by buying the small Californian software house Communications Solutions. The Cupertino-based firm, founded in 1979, has 20 employees specialising in IBM system network architecture (SNA) software. VisiCorp is teaming up with Informatics for the project to let PC users access mainframe databases.

Focus down

INFORMATION Builders' fourth generation language Focus has been moved down from large computers on to IBM's Personal PC/Focus was unveiled last week at a user group meeting in the US and will be available in this country within four weeks. The firm has plans to bring Focus to other personal machines later this year, including DEC, Texas Instruments, Olivetti and Xerox.

Software File is compiled by George Black.

Dataview moves into PC, Sirius

ONE OF the biggest British software publishers, Dataview of Colchester, is branching out from its Commodore base to cover Sirius and the IBM-PC.

Dataview's foremost product, the word processor called Wordcraft, has been rewritten from its original 6502 Assembler in the portable high-level language BCPL, a relative of C.

The task has been undertaken by Wordcraft's author Peter Dawson. The decision to diversify was taken about 18 months ago by managing director Paul Handover, who insists that the move does not mean abandoning Commodore. A new Sirius division has just been set up which should boost the



HANDOVER... Aiming at £2 million turnover this year.

company's dealer network from 400 to 700, according to Handover. The Sirius version of Wordcraft, running under Microsoft's MS-DOS operating system, has just been introduced, to be followed shortly by the IBM version. As many as possible of the company's other packages will be rewritten for the Sirius and IBM micros, says Handover, who is aiming for a £2 million turnover this year.

Wordcraft's sales were bumped up by the accompanying dongle, or hardware protection device, which prevents unauthorised copying. Exports have accounted for much of the revenue, with versions now sold to 30 countries, in

seven languages, including Afrikaans. Users have included ICL, the Post Office and the Ministry of Defence.

Dataview is also working on new versions of its DTL products for machines other than Commodore. Its only in-house-developed package, the solicitors' system Datalex, will be put on the IBM-PC later this year. The DTL range includes a Basic compiler from Drive Technology, which speeds up code execution. DTL-Basic, also available in a version for the Commodore 8096 (as System 96), was written by David Hughes of Drive.

Kildall puts Rowley in charge to go for growth

DIGITAL Research founder Gary Kildall has promoted John Rowley from chief operating officer to president. Rowley takes over from Kildall, who remains chairman and becomes chief operating officer.

Kildall says the promotion is reward for profitable organisation of the company over the past 18 months to target new high-growth markets.

One of Rowley's first duties as president was to announce the launch of a Far East operation headquarters in Tokyo.

He said he saw the move as a key step in the strategy to build a worldwide network of direct sales and customer support facilities for the firm's CP/M products.

Last week Digital announced the introduction of a Personal Basic language to compete with Microsoft's M-Basic and an agreement with VisiCorp to link its VisiOn graphics operating software up to the CP/M systems.

VAX, PDP, LSI.

P.D.Q.



We'd like to introduce a new level of service for DEC users. We're offering a range of specialist skills already proven in commerce, banking, industry and research. We'll plan, configure, supply, install and provide field support at any level. And back this up with full quality assurance. To reassure those whose hands are on the

flexible to meet your needs. For example, we can supply a full range of compatible equipment that can open a few eyes on both price and performance.

From designing a major system, to supplying simple system enhancements, our skills are currently enjoyed by many major companies.

If you're not in the business of taking a risk, call Lambart. Speak to Frank Richardson on Maidenhead (0628) 72037/74916.

Lambart

We've worked hard to be the best.

Lambart Computing, 52, Moorbridge Road, Maidenhead, Berks, SL6 8BN. Tel: 0628 72037.

Wang on target for a bumper year in Britain

by John Riley
WANG UK is well on track for a bumper year, claimed managing director Ian Diery last week. Revenue for the first nine months of the current fiscal year is about 50% up on the same period last year and Diery expects the total revenue for this year to the end of June to be £52 million.

He sees this trend continuing as his office automation strategy moves into big gear. "The race for the desk is on," he explained, "and Wang is well placed to take the lead." Diery believes that the key to success is to get personal computers into offices as quickly as possible.

That is why he has re-organised his selling strategy, has lined up 30 dealers to sell his Professional Computer, and signed an agreement with Plunkett for applications packages to go with them. About 40% of his 600-strong workforce is in customer support engineering.

"We are over the hump in engineering and are in good shape for the next three or four years," said Diery. "Our managers are mature — the top five Wang UK managers all have over five years' experience with the company."

But on the microcomputer side there has been a slowing of Wang's programme to wean users of other manufacturers on to Wang equipment. The company's drive to sign up Digital Equipment OEMs to help with package conversions and its move to snatch IBM System 34 users have both moved more slowly than expected.

Diery has had difficulty finding suitably specialised DEC systems houses for the conversions. "The houses we have signed up are significant with the right specialisation," he said, "but we had hoped to have more lined up. We have been surprised that many of the systems houses we looked at were too general in their approach."

His search began nearly two months ago as part of his strategy to siphon off DEC users to the Wang VS range of minicomputers. So far three to four DEC systems houses have been signed up, but are not being named for the present. "We'd prefer to wait for the software to be converted first," said Diery. The key vertical areas he is concentrating on are insurance broking and banking.

Wang's move to get IBM System 34 users to move over to its VS Series of minicomputers with its Sycam 34 compatible compiler has gone more slowly than hoped. This has been caused by a combination of technical problems, fierce IBM resistance, and a wait-and-see attitude by IBM users. Although it has won 15 full conversions so far, Wang UK has not yet broken into the major multiple CPU user base, such as banks and insurance.

"We have cracked multi-CPU deals in the US," said Diery, "and we are working hard on that front in Britain. Conversion is a complex business because of benchmarking, but we have set up a conversion centre in Isleworth and things are well in hand. We'll see a rash of conversions by September."

There have been technical difficulties, particularly with screen handling. Extra conversion has been needed to provide utilities for converting data files. On the other hand, there have been few problems with batch handling. "Although the screen handling has been difficult, we have had a tremendous hit rate — almost 100% — with our RPG compiler for batch systems," said Reg Broughton, Wang UK's director of marketing support services.

Wang is getting what it considers surprisingly stiff resistance from IBM which is battling to keep its System 34 users.



DIERY... "Race for the desk is on — and Wang is well placed to lead."

SOFTWARE FILE

Synapse supports the borough

SYNAPSE Computer Services of Chesham, Bucks, is giving software support to the London Borough of Barking and Dagenham, to help overcome problems in updating IBM DOS/VS to VSE on the council's 4331 mainframe.

The authority's DP head, Paul Offen, said the decision to seek third-party help followed 18 months of hassle and rapid progress was now being made. Technical staff on the borough's payroll were benefiting from working alongside the agency experts, he added.

BP signs Omega

BP COMPUTING subsidiary Scicon has signed up the Omega Group of Cleveland, Ohio, to market its computer-based training aid Cavis in the US. The computer audio-video instruction system was developed at the Sussex Institute of Higher Education with Scicon support.

Legal sickness

PETERBOROUGH Software has updated its popular Unipersonnel package with an online inquiry language, says the company's product development manager Nick Cook. Legal requirements of statutory sick pay are incorporated in the latest version.

SAS for Ramis

MATHEMATICA has linked its successful Ramis-11 database management system to an SAS interface. Ramis users are promised a user-friendly tool to translate data into the format needed by the SAS Institute's statistical analysis software. The systems run on IBM and plug-compatible mainframes under VM/CMS and MVS/TSO operating systems.

Let's crunch

US ARRAY processor specialist Floating Point Systems has brought in an enhanced Ansi-77 Fortran compiler, to speed number-crunching jobs. FPS-164, but they don't know what to do with them and want something new," said the exchange's Thomas Lento.

Pentagon link

PENTAGON Business Systems of London has agreed with MGB, Hernal Hendon, to work on an interface between its order processing system Ordermaster and MGB's ledgers. A joint development team aims to complete the system for ICL ME29 mainframes by September. MGB ledgers are one of the products listed by ICL in its new Business-29 collaborative venture.

VisiCorp buys

VISICORP has strengthened its bids to link IBM mainframes to the PC by buying the small Californian software house Communications Solutions. The Cupertino-based firm, founded in 1979, has 20 employees specialising in IBM system network architecture (SNA) software. VisiCorp is teaming up with Informatics for a project to let PC users access mainframe databases.

Focus down

INFORMATION Builders' fourth generation language Focus has been moved down from large computers on to IBM's Personal. PC/Focus was unveiled last week at a user group meeting in the US and will be available in this country within four weeks. The firm has plans to bring Focus to other personal machines later this year, including DEC, Texas Instruments, Olivetti and Xerox.

Software File is compiled by George Black.

Dataview moves into PC, Sirius

ONE OF the biggest British software publishers, Dataview of Colchester, is branching out from its Commodore base to cover Sirius and the IBM-PC.

Dataview's foremost product, the word processor called Wordcraft, has been rewritten from its original 6502 Assembler in the portable high-level language BCPL, a relative of C.

The task has been undertaken by Wordcraft's author Peter Dawson. The decision to diversify was taken about 18 months ago by managing director Paul Handover, who insists that the move does not mean abandoning Commodore.

A new Sirius division has just been set up which should boost the



HANDOVER... Aiming at £2 million turnover this year.

seven languages, including Afrikaans. Users have included ICI, the Post Office and the Ministry of Defence.

Dataview is also working on new versions of its DTL products for machines other than Commodore. Its only in-house-developed package, the solicitors' system Datalex,

will be put on the IBM-PC later this year.

The DTL range includes a Basic compiler from Drive Technology, which speeds up code execution. DTL-Basic, also available in a version for the Commodore 8096 (as System 96), was written by David Hughes of Drive.

Kildall puts Rowley in charge to go for growth

DIGITAL Research founder Gary Kildall has promoted John Rowley from chief operating officer to president. Rowley takes over from Kildall, who remains chairman and becomes chief operating officer.

Kildall says the promotion is reward for profitable organisation of the company over the past 18 months to target new high-growth markets.

One of Rowley's first duties as president was to announce the launch of a Far East operation headquarters in Tokyo.

He said he saw the move as a key step in the strategy to build a worldwide network of direct sales and customer support facilities for the firm's CP/M products.

Last week Digital announced the introduction of a Personal Basic language to compete with Microsoft's M-Basic and an agreement with VisiCorp to link its VisiOn graphics operating software up to the CP/M systems.

Ferranti displays. Clearly great performers.



You can see a Ferranti display how it comes on. The picture is clear. The characters are easy to read. The image steady.

It's all because Ferranti has so much experience in making displays and has developed display technology into an art form that really comes across.

FT80 TERMINAL Handsome, compact and easy to use. A big clear picture, tilt and turn, and a low profile keyboard with palm rest. Low cost VT100/VT180 alternative conforms to ANSI X3.64/ECMA 48 standards. Includes as standard local editing, "mouse" cursor, scrollable memory, graphics set, printer port, status line and independent line for host messages.

FT30 CONTROL TERMINAL Powerful raster graphics terminal for high quality colour displays. Conforms to ANSI X3.64/ECMA 48 standards. Cuts programming time, featuring point plot, 2 alphanumeric sets, 5/7 user symbols, macro symbols and 64 fore and background colours. Horizontal and vertical lines, graph trend and vector plots. Split screen, 4 directional scroll and fill-in-block. Choice of "mouse" or optional keyboard.

FULL CURVE GRAPHICS High resolution, fast refresh, full colour pictures output to monochrome or pencon colour display units. Programmable self-contained graphics processor, local memory, keyboard, light pen and trackball.

Ferranti displays are first choice with an Argus 700 (see page 10) and a host of other leading computer manufacturers.

FERRANTI
Computer Systems

Reuters aids banks to clear the clutter

by Philip Hunter
BANKS and money dealers can now get at their different sources of computer-based financial information from a single keyboard designed by Reuters, the world news organisation.

The keyboard, with switching equipment, is aimed mainly at dealers who already use Reuters' worldwide communications network for access to various types of financial information such as exchange rates and stock market prices.

"Typically you need one terminal for each activity," says Reuters assistant sales manager Peter Mann. "There may be six or seven services altogether."

The new keyboard will enable the dealer to clear the clutter of hardware on the desk, and control all the data processing from a single workstation. "A user can look at some information, and then switch to an Apple computer to do some calculations," says Mann.

The dealer can also make instant comparisons between current money market rates, and his own forecasts held on an internal database.

Reuters has 34,000 screens installed for its financial monitoring services at banks and dealers in 69 countries. Users of its network can pass information to each other with a guaranteed response time of four seconds.

Reuters has also developed a "calculative datafeed" that allows external data to go straight into an in-house minicomputer or mainframe for calculations.

With the new keyboard, the user can switch from an external service straight into the in-house computer to examine the result of almost instant calculations and statistical analyses of the raw information.

Although Reuters' keyboard is exclusively for financial applications, the principle could equally well be applied whenever quick decisions have to be made from several sources of information. "But we are not interested in opening up a new market," says Mann.

Reuters was the first company to offer international computer-based financial information when it launched its commodities and foreign exchange service in the 1970s.

France takes just 5% of electronics market

by Jack Gee
FRANCE has a puny five per cent share compared with the US' massive 47 per cent slice of the world electronics market which was worth \$330 billion last year, according to a report sponsored by the French Ministry for Industry and Research. But the French are making major breakthroughs with sales of computer technology, and services.

The report is the result of a survey by the French Telecommunications and Electronics Council which has been set up by the Ministry to encourage co-operation between France and the US in the framework of the five-year French national electronics plan.

The report, which is available from France Cables et Radio, 42 Rue des Jeunes, 75002 Paris at a price of 200 francs, gives a detailed account of differences between the electronics industries of the two countries and overall world trade in these products.

The French Telecommunications and Electronics Council

says that on a world scale information technology accounted for \$72.6 billion of a total of \$330 billion of expenditure on electronics products last year.

Industrial equipment took first place with \$105 billion. Components took \$42.9 billion worth, consumer goods \$42.9 billion, computer services \$26.4 billion, robotics \$23.1 billion and office automation \$16.5 billion.

In cash terms, the US share was \$155 billion and France's a mere \$16.5 billion.

The Americans controlled 22 per cent of France's domestic market which is estimated at \$18 billion whereas the French control only 0.3 per cent of the US home market, which is reckoned at \$155 billion.

The council stresses that France's sales to the Americans of electronic consumer goods are almost non-existent. But French computer service firms control 0.6 per cent of American software and hardware, foreign companies in the field across the Atlantic.

VAX, PDP, LSI.

P.D.Q.



We'd like to introduce a new level of service for DEC users.

We're offering a range of specialist skills already proven in commerce, banking, industry and research.

We'll plan, configure, supply, install and provide field support at any level. And back this up with full quality assurance.

To reassure those whose hands are on the

purse strings, we're fast, efficient — and highly competitive.

Equally, we're very

flexible to meet your needs. For example, we can supply a full range of compatible equipment that can open a few eyes on both price and performance.

From designing a major system, to supplying simple system enhancements, our skills are currently enjoyed by many major companies.

If you're not in the business of taking a risk, call Lambert. Speak to Frank Richardson on Maidenhead (0628) 72037/74916.

Lambert

We've worked hard to be the best.

Lambert Computing, 52, Moorbridge Road, Maidenhead, Berks. SL6 8BN. Tel: 0628 72037.



BARNES... "It must be years since I wrote anything that someone used."

Man behind Ada wants it as a UK standard

"I'd like to write some programs again," mused John Barnes. "It must be years since I wrote anything that someone used — wonder if I could still do it."

This is a startling statement from one of this country's top computer language experts. But it is easily explained — he has spent the last seven years or so co-ordinating the development of Ada, which many think is the language of the future.

A Cambridge University mathematician, he joined ICI in 1961 and spent five years working on numerical analysis. He was based at the company's research centre at Roze-down House in South Oxfordshire.

It was during a summer school at Oxford in 1963, when he met Edinburgh University's Donald Michie, that his imagination was fired by the possibilities of computers.

After that he wrote a program on the Ferranti Argus machine to solve the problems of a chemical plant, and developed SML, the small machine language — "it was like Algol 60 only with parallel processing."

He was behind ICI's biggest contribution to the software world, which was the language RTL2. It began as RTL1, a process control language which was essentially a

modernised Coral 66. They tried to persuade the Defence Ministry and British Steel to take it on, but failed, and ICI went it alone.

RTL1 was only used internally. ICI adopted it in Northern Ireland and Holland, but it was seen as a large-machine prototype.

RTL2, the slimmed down version, was an enormous hit, is now used by some 200 sites, mostly on DEC PDP-11 and Vax minis, and has found its way all over the world. Barnes was head of a team

by George Black

of seven which created it, before the rights were sold to Systems Programmers Ltd in the mid-Seventies.

"I had to leave ICI because the laboratory was closed down, and ICI was getting out of software. My job moved to Systems Programmers and I had to go with it. I was naturally a bit nervous about it because ICI was, after all, the biggest firm in Britain; but who were SPL then?"

David Rodway had just set up SPL's research centre at Abingdon and it was here that RTL2's men found their new home.

He was involved with the conception of Ada from its very beginning. "The idea was to de-

velop a language which would stop the proliferation of languages on the market during the Seventies and become the new industry standard," he said. "So I am very glad that it has now been accepted by ANSI. But I don't think it is the ultimate by any means."

He did not think an ideal language could ever be developed because there was so much in the subject that was a matter of opinion or taste. But there was a growing understanding in the industry of what conventions ought to be.

"Software is still a fairly primitive art, but Ada is a step in the right direction and I'd like to see Britain adopting it as a standard."

His next five years are to be devoted to the CHAPSE project — his firm is allying with ICL, SDL and Software Sciences to develop an Ada and Chill environment. He thought the resultant product could be a big money-spinner in the international market.

And after CHAPSE? "Well, I feel a reviving interest in maths — maybe because my elder daughter is becoming keen on it."

"But I don't really think I'd go back to Cambridge to teach maths. I have thought about it, but it isn't really the kind of atmosphere I thrive on. I think I'll be with SPL for a fair while yet."

PLATFORM

Decision-takers must talk the same language

MANY computer companies could help themselves — and their customers — if only they had a clearer approach to decision taking. That is my firm opinion having worked with companies which both sell and buy computer services.

The story of the company which bought computer equipment which didn't quite match its needs is, of course, part of the industry's legend. What has not become quite so clearly studied is why companies have bought — or been sold — equipment which did not clearly match their requirements.

There is certainly some blame among computer users for this. Too often they have not identified their needs clearly enough, and as a result, have been unable to explain those needs to suppliers.

But I believe the burden of blame rests equally with suppliers and customers. They are, after all, the experts, and the user cannot be expected to have such a clear grasp of the technical possibilities of equipment as the suppliers who are dealing with it every day.

Part of the problem we have found is that too often computer suppliers prepare a pitch for new business in the wrong way. In case after case, when they get a new prospect, the various departments of an equipment supplier will sit down and think what they can bring to bear on that client's business from their own points of view.

The marketing management will look at the problem from a marketing point of view, the sales people from their standpoint, and the systems staff from the way in which the system can be configured.

The problem is that all these people are speaking different languages — and often have conflicting objectives — and as a result they do not get to the heart of the problem.

Because of this they do not put their organisation or proposals in the best light.

So how can this be overcome?

The way, I believe, is for the supplier to identify his prospects' real problems far more carefully. The supplier's staff in all departments must be trained to look at the customer's problem from his point of view. As indeed the customer must be trained to better appraise his own needs.

By doing this jointly they will be able to analyse better what the customer sees as his problems and

The supplier's staff in all departments must be trained to look at the customer's problem from his point of view. As indeed the customer must be trained to better appraise his own needs

devise a system which puts forward the best solution to his problems.

They need, as a team, to devise the best possible configuration to meet the customer's needs. As a result, suppliers will be showing to best advantage the benefits of their approach to the potential customer's needs.

In order to reach that desirable end, both parties need to pass through several stages. The supplier's role is then to produce two or three alternatives to meet those objectives. The evaluation of these alternatives will determine which is the most effective.

Finally, the supplier organises the proposal to show quite clearly how his chosen approach most effectively meets the client's needs. This structured method of presenting a proposal is becoming a vital ingredient of success, for increasingly there is only a narrow technical advantage between one piece of equipment and another.

Therefore, the way the system is

configured and the way it is to meet identified needs is equally important.

Another area in which suppliers need to gain a competitive edge is after-sales service. Suppliers should consider their field service engineers' technique which enables us to need to identify trouble quickly and accurately, find the root of the cause, fix it and extend the life without repetition.

Companies which have adopted this approach have found that their sales have improved their problem-solving and planning skills, demonstrated increased confidence in front of customers and enhanced the image of the company.

If suppliers are to adopt this effective approach, they must be prepared to train their staff in the process of decision-taking. The training involves improving the skills of managers in decision-making in their own and their customers' interests.

It is an approach to operational decision-taking which will get suppliers and customers talking in common language — the language of mutual success.

Brian Bentley

Brian Bentley is managing director of Kepner Tregoe UK.

10 YEARS AGO

FROM COMPUTER WEEKLY OF MAY 24, 1973: The government was expected to make a grant of £25 million to ICL for the period up to September 1980 after which the company would aim to be independent of all government support... Media's latest for data processing managers, according to the latest survey, was £3,016 a year... Data Logic announced the introduction of a new bureau service to provide users with "a full applications management service".

Moon man checks on Nostradamus

PROPHETS and astrologers are allowed to get away with their rant nonsense because nobody who believes in them is too interested in checking the accuracy of their predictions. And non-believers have better things to do.

The predictions of 16th century French astrologer Nostradamus have certainly been given remarkable freedom from rigour. He has been credited with predicting the catastrophes of Marx and Hitler, but unaccountably missed the development of IBM system software.

All of Nostradamus' predictions place events against an astronomical clock based on the alignment of the planets, and against our calendar. Yet no one had bothered to calculate accurately when these alignments occurred, many people being all too happy, as I hinted, to indulge in fairy tales.

But now an astronomer, who was head of communications for the Apollo moon programme, has

run the predictions of Nostradamus through a computer. He has published a book in France entitled *La Fin du Monde*.

And some of the news is good. The world will not after all end in 1999, but in 3797, giving us another 1,814 years of civilisation. Just as well because I have another 986 years to run on the lease for my house.

But now an astronomer, who was head of communications for the Apollo moon programme, has

run the predictions of Nostradamus through a computer. He has published a book in France entitled *La Fin du Monde*.

And some of the news is good. The world will not after all end in 1999, but in 3797, giving us another 1,814 years of civilisation. Just as well because I have another 986 years to run on the lease for my house.

But now an astronomer, who was head of communications for the Apollo moon programme, has

run the predictions of Nostradamus through a computer. He has published a book in France entitled *La Fin du Monde*.

run the predictions of Nostradamus through a computer. He has published a book in France entitled *La Fin du Monde*.

And some of the news is good. The world will not after all end in 1999, but in 3797, giving us another 1,814 years of civilisation. Just as well because I have another 986 years to run on the lease for my house.

But now an astronomer, who was head of communications for the Apollo moon programme, has

run the predictions of Nostradamus through a computer. He has published a book in France entitled *La Fin du Monde*.

run the predictions of Nostradamus through a computer. He has published a book in France entitled *La Fin du Monde*.

And some of the news is good. The world will not after all end in 1999, but in 3797, giving us another 1,814 years of civilisation. Just as well because I have another 986 years to run on the lease for my house.

But now an astronomer, who was head of communications for the Apollo moon programme, has

run the predictions of Nostradamus through a computer. He has published a book in France entitled *La Fin du Monde*.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, May 26, 1983

Alvey chief takes industry to battle

BRIAN OAKLEY, the man who will direct the Alvey Programme, is not one to mince words. It is economic war, he said, and if the UK does not stop bickering the promise of information technology will not be fulfilled.

Oakley clearly understands that his new position will place him on a very sticky wicket. "I will be expected to walk on water," he told a group gathered in London last week to inaugurate the SPL-Insight study group on Japan's fifth generation project.

It was expected that the person chosen to head the Alvey Programme would be a well-known industrialist. We called for just such a person on these pages when the Alvey report was first released. Another civil servant worn down by the demands of bureaucracy did not bode well for the success of Alvey.

Yet meeting Oakley dispels most of the doubts. He was even able to joke about the fact that he was not that well-known industrialist everyone hoped for. Modesty mixed with a realistic appreciation of the difficulties to be faced is a combination that takes Oakley above the average civil servant.

It is possible that once Oakley moves from the rural surrounds of the Scientific and Engineering Research Council in Swindon to the grey corridors of the Department of Industry he will lose something of his openness. He promises a small, unbureaucratic directorate, with an open door policy.

If he succeeds in that there will be one island of government unlike any other. Real support from industry, as well as government and academia, is essential if Alvey is to become more than a talking point.

Oakley expects a hard fight to make Alvey work. Now is the time for industry to give him its unreserved backing.

War of awareness

THE American computer Press calls the National Computer Conference, which has just ended at Anaheim in California, the biggest computer show in the world.

It isn't. The computer section at the Hannover Fair has twice the number of exhibits and 30% more visitors.

What the Americans might more accurately have done is claim that the NCC is the most important computer show in the world, and not just because it suffers from the blessing of hype.

It is held with tremendous élan and pizzazz, to use an acutely American phrase, in the world's biggest market for the sale, and indeed production, of computers.

And that's the rub. To get the kind of take-off of an Apple or an Atari, you have to start in America.

It was sad, therefore, to note an absent ICL which, according to its directors, is making major strides in America. Nixdorf of Germany, which now claims to be Europe's number two independent computer company after ICL, and which is about the same size in the US as ICL, was there with a splendid stand — and 30 European editors to ensure that Europe heard that Nixdorf was at the NCC.

Showing the flag for Britain was largely left to a group of the small and newer companies under the aegis of the Business Equipment Trade Association.

Rair was there, and Torch, and with news of a big US deal in the wind so was Future Technology Systems.

But perhaps the bravest appearance of all was made by UK stock market newcomer Micro Focus, which had two well positioned and enthusiastically manned stands at the NCC.

That said, there was still a touch of the "thin red line" about the UK's presence. It was as though we still haven't quite grasped either the significance of the American computer market and a presence in it, or the significance of going to where the whole world goes to see the computer industry.

Without that perception there is little chance the UK will ever win that vital war of awareness.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Andrea Rilla, of London, who wins £5.

Computers will soon outstrip humans in the same way as humans have outstripped apes. In a few decades they will be creating acts whose beauty is lost on us and sciences whose meaning is beyond our comprehension.

Radio Times

LETTERS

Software houses slur

I HAVE seen a number of items in the computer Press quoting the self-styled SSP expert Michael Cupstone of Information Management Services, including your Workplace (Computer Weekly, May 12), as saying that many computer systems for SSP are suspect.

I think it pertinent to point out that the test criteria used by IMS was supplied by Industrial Relations Briefing which has a close interest in MicroSSP produced by CMG. While not disputing the problems of SSP quoted in the item, I consider that the potential slur on software houses should be questioned.

While the conception of the CMG systems seems good, there are other systems which grasp the problem and succeed. IMS does not have a monopoly on SSP knowledge nor does IRL.

Incidentally, the problem of the eight-week average is not solved by extending to 12 weeks. It is neces-

sary to keep a record of each average taken and then refer in the figure applicable to the "relevant date" of the PIW being processed. In the case of a disputed PIW requiring an insurance officer or tribunal decision this could be anything up to a year in the past.

As an ex-employee of the DHSS whose understanding of SSP has been vetted by the Department, I should be happy to offer an unbiased opinion to any company producing SSP software. We ourselves have produced an SSP calculator but the market is big enough for all. I am only concerned that the legislation is correctly interpreted — a legacy perhaps from my DHSS days at IBM, Geest Computers and Gordon and Gotch were all appreciative of my suggestions — even CMG took note.

VOLANDE SMITH
Shumwari Associates
Marlow, Bucks

Video-based storage

I READ with some concern the article "Video-based storage on the way from Marconi" (Computer Weekly, May 5). It was written about a lecture that I gave to the IBM Computer Users Association and has unfortunately several errors in it.

The device that we have now produced works in conjunction with standard video tape equipment and not with video disc, as suggested in the article. We are thinking of video disc, but we have to walk before we run.

This device we are working on is capable of storing 10 to 11 bits of information digitally on a one-hour video tape. Without any error in coding we currently have a drop-out rate of 1 in 10. The system is

flexible and can handle a wide range of data rates.

It is therefore a very important addition to image processing facilities where large amounts of data are required to be accessed by scientists in conjunction with their scientific studies.

The states can be rectified and further information on the device may be obtained directly from myself.

GARRY E. HUNT
Director, Centre for Remote Sensing
Imperial College of Science and Technology
London SW7

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address; not necessarily for publication. Letters may be cut.

Dispute was with ITT

YOUR Racial and Rixon piece (Computer Weekly April 2), contained an inaccurate and misleading footnote about Format Communications and STC.

Format Communications was, in fact, in dispute with ITT Commercial Cable Company over the 900 ADX — not with STC.

ITT Commercial Cable Company is part of ITT and is not part of STC. You will appreciate, therefore, that your report is incorrect.

BOB HARRAP
Public Relations Manager
STC Business Systems
Hillingbury
Brighton.

Technological confusion

YOUR front page article (Computer Weekly, April 21) illustrates the computer world's latest bit of technological confusion.

We rather than Nixdorf has announced "the world's first commercially available artificial intelligence system".

Extremely thin on the ground as such products may be, in fact a real AI product has been available for a number of years in the US: Intellect, a natural language query system from Artificial Intelligence Corporation.

DAVID FERRIS

San Francisco

Wrong writer

WITH reference to the article Why Unix has become the industry's big talking point (Computer Weekly, May 12) we should like to point out that this article has been attributed to the wrong author.

The name of the correct author is Mick Bailey, who had put a considerable amount of effort and research into the article. I would appreciate it if you could apologise to him.

MIKE BRINSFORD
Marketing director
Data Logic
London NW2

Editor's note: Our apologies!

Guild of Practitioners

I AM writing about some of the errors (Computer Weekly, May 12) reported in your article "New guilds after young members".

Finally I have confirmed with Penny that I have not written or spoken to him that, "we are co-operating with the Council in training"; nor have I made the comment to anyone else. I would be grateful if you would publish this correction.

D. C. RICHARDSON
Secretary General
The Guild of Computer Practitioners
London NW1

'A serious competitor'

I WOULD like to refer to the article by Philip Hunter (Computer Weekly, May 19) regarding the Profile of Floating Point Systems. He states that FTS has no serious competitor.

I would dispute this statement as the UK distributor for CSPI. CSPI has an extensive range of array processors starting with the recently released Mini Map which is a 7 MFlop AP through to the MAP 400 which operates at 24

Mflops. All these are 32-bit, and for 64-bit accuracy there is the MAP 6400.

With sales of over \$10m a year and rapidly increasing I would consider that FTS does have a serious competitor.

K. G. NOCK
Manager, CSPI Products
Electronic Associates
Burgess Hill
West Sussex

A funny thing . . .

I AM in the process of preparing some material relating to the uses and abuses of microcomputers generally and to the crazy things they say in microcomputer manuals specifically. If any of your readers has a relevant funny story or can point to specific instances of glibly spoken in manuals I'd be delighted to hear from them.

MICHAEL THORNE
University College
Cardiff

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address; not necessarily for publication. Letters may be cut.

welcomed the arrival of the Guild and its aims and objectives.

Finally I have confirmed with Penny that I have not written or spoken to him that, "we are co-operating with the Council in training"; nor have I made the comment to anyone else. I would be grateful if you would publish this correction.

D. C. RICHARDSON
Secretary General
The Guild of Computer Practitioners
London NW1

The Guild of Computer Practitioners
London NW1

'A serious competitor'

I WOULD like to refer to the article by Philip Hunter (Computer Weekly, May 19) regarding the Profile of Floating Point Systems. He states that FTS has no serious competitor.

I would dispute this statement as the UK distributor for CSPI. CSPI has an extensive range of array processors starting with the recently released Mini Map which is a 7 MFlop AP through to the MAP 400 which operates at 24

Mflops. All these are 32-bit, and for 64-bit accuracy there is the MAP 6400.

With sales of over \$10m a year and rapidly increasing I would consider that FTS does have a serious competitor.

K. G. NOCK
Manager, CSPI Products
Electronic Associates
Burgess Hill
West Sussex

A funny thing . . .

I AM in the process of preparing some material relating to the uses and abuses of microcomputers generally and to the crazy things they say in microcomputer manuals specifically. If any of your readers has a relevant funny story or can point to specific instances of glibly spoken in manuals I'd be delighted to hear from them.

MICHAEL THORNE
University College
Cardiff

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address; not necessarily for publication. Letters may be cut.

DAVID MARONI
Director of External Relations
Olivetti
London SW15

DOWNTIME

No! Not another one

IT'S not often that I feel sorry for politicians. Those who want to wield great power are obviously megalomaniacs and deserve all they get.

But it was hard not to feel a twinge of sympathy for our very own Ken Baker last week.

Officially declaring a new robotics centre open, he quipped: "This is positively the last plaque to be unveiled in the course of this administration."

The gathered dignitaries laughed politely, but I detected the barest hint of relief in the Minister's eye as he pulled the ceremonial cord. Does he worry about being reincarnated after the election as official Tory plaque unvelver?

No, I should think he's more worried about coming back as shadow spokesman for kissing babies.

New ways to waste money

VIDEO GAMBLING could be one of the first widespread uses of teletext, declares a well-known US consulting firm. As a bait to get people to use more serious services like teleshopping, the firm proposes in a report as thick as my arm that gambling services be implemented.

"Consumers could receive gambling information on their home television sets, place their bets with a keypad, and then watch the sporting event at home," says the firm.

The great joy is that you will be able to gamble seconds before the event.

The US firm has a name for this network of sin — TeleVisia.

Golden name
THAT repository of all knowledge, the International Directory of Software, takes pride of place (and not a little space) on the desks of the computer industry. Each year, a major software company takes a not inconsiderable advertisement on the front cover. Lovingly embossed in gold on the front of the 1983-84 edition is the name of just such a company.

The name of the company? Althego.

WE SHOULD APPLY FOR SOME ALVEY CASH TO SEND A REALLY GOOD SPY TO SILICON VALLEY.



A shocking thing to do in the bath

WHAT could be more relaxing after a hard day at the office than a soothing hot bath? Micro manufacturer Epson would have us believe that relaxing in a bath while working on one of their dinky little micro is, if its colour supplement

ads are anything to go by. You will be pleased to learn that the Advertising Standards Authority has decreed the Epson ads for use in the bath. The ruling follows a complaint that the electrical what-nots inside the

micro might blow

Tops 'just the job' for first lady

LAST September Jane Atherton became the first woman to take a computer technology course at the Control Data Institute in Manchester. Six months later she finished the course, and walked straight into a job as microcomputer maintenance engineer at Unilever subsidiary UCSL Microsystems.

Atherton dismisses as myth the common belief that a Tops course is just a holiday from the daily grind. "Six job offers before the course ended," she says. And several others since the remaining 12 have since been placed.



ATHERTON... "No discrimination against first woman."

The Tops training was ideal preparation for the job, maintains Atherton - especially the electronics part. "I had extensive knowledge of computing as an operator," she says. Atherton spent four years in operations at the Science and Engineering Research Council, Daresbury, on IBM and Cray machines, after taking an HNC in computer studies.

work on microcomputers at UCSL. "But I have only had the easier jobs so far," she says - mainly printer problems. "It is most often the mechanical things like printers and disc drives that go wrong," says Atherton. She felt no discrimination against her as the first woman on the course. "I don't think women are given enough encouragement to do this sort of thing."

Consultant's Casebook Get a second opinion on those estimates

A COMPUTER department's credibility suffers severely when it overruns project cost and time estimates. Future developments may be placed in jeopardy if users have no confidence in the estimates they receive.

The head of information services of a well-known insurance company has asked us to perform a review of his department's project estimating methods. He had had two nasty scares in the recent past, and wanted to avoid any repeat performances. Furthermore he had detected dark mutterings around the company, doubting the wisdom of using his services - users were fed up with the late overrun projects.

It's difficult to imagine an insurance company operating today without the use of sophisticated computing technology. And this company was no exception. It ran an installation of sizeable ICL 2900s at headquarters, linked to an extensive network of RJE terminals in branch offices around the country. The mainframe site boasted an impressive array of technology, and the latest database and online development bells and whistles.

So why was the department so bad at estimating development costs and timecales?

A new development for the automatic generation of renewal notices for its car insurance business had just been delivered. While the development was installed on time, the final bill was 210% of the original estimate!

A replacement system for house and home contents insurance business had been scheduled for delivery that month. The implementation had been postponed for five months, and the original cost estimate increased by nearly half.

Since this project was already a six-figure development, and critical to the department's plans for expansion, the information services function was quickly losing friends.

We found that the fundamental problem was related to the point at which estimates were prepared and firmed-up.

The company quite rightly insisted on value for money from its computing function. It therefore required a clear definition of potential costs and benefits before embarking on any major new development. So far, so good.

What tended to happen, however, was that a great deal of estimating effort went into the initial feasibility or pre-feasibility phases of the project. These phases would often include very detailed project cost analysis and evaluation. Thereafter, however, these estimates were not subject to regular critical review - only at post-implementation time.

In analysing the information services department's performance on a further half-dozen major projects, we found the following:

Workplace is compiled by Philip Hunter

PUZZLER

THIS 4 x 4 magic square (in which the numbers 1 to 16 have been replaced by letters selected in random order) is "diabolic".

What this term means is that: (a) All four horizontal, like GCHB, all four verticals, like EBOI, and the two long diagonals, each sum to the magic constant of 34; (b) all subsidiary groups of cells, such as AMNL, CHPM and HBOP, also sum to 34; and (c) the square will remain diabolic even if a row of four figures is shifted from top to bottom or bottom to top, or if a column of four figures is shifted from one side to the other.

J	K	F	E
G	C	H	B
A	M	P	O
L	N	D	I

Can you construct such a square, before turning to page 42 for the solution?

TELECOMS

Britain's beleaguered private telecoms network faces a hard battle if the Tories return to power, says Della Bradshaw

Why Mercury's deadlines are slipping away

IN February 1982 the government made its most dramatic move in an attempt to liberalise the telecommunications industry in Britain. It granted a licence to Mercury Communications, the first private telecommunications service in Europe.

The aim of Mercury was simple: to cream off the top 300 or so companies from British Telecom's customer list. The government was aiming for a viable, if not successful, alternative communications system to British Telecom before the election.

But although the aims were simple the execution has certainly not been so. As well as technical problems Mercury has faced union opposition, legal wranglings and an unexpectedly aggressive British Telecom, as well as a rather embarrassing lack of customers.

The new firm's credentials include the telecommunications experience of chief executive Derek Evans and technical director Peter Cott, both of whom joined from parent company Cable & Wireless, and the computer services experience of sales director Stuart Bailey, who joined last year from the world's largest teleprocessing network operator, Geisec.

Evans also boasts the balanced background of service with the UK's only other public network operators, British Telecom and Hull City telecommunications department. But to date the three owners of Mercury - British Petroleum, Cable and Wireless and Barclay's Merchant Bank - have put £60 million into the venture, and have seen most of their deadlines for the company slipping away.

The first London service should have been operational in April, using microwave point-to-point dedicated links between customers. That service has already started between some customers, but of the five dishes and nodes necessary to operate the system in the London area only one is in place, on Britannic House in Moor Lane, the headquarters of British Petroleum.

Then comes the problem of interconnecting the service into the BT network. The initial interconnection links between customers and Mercury and BT have agreed is for a level one connection between the main network and the PABX in Mercury's Longacre office. That connection, similar to the private connections between large offices in the same firm, will have to be made by BT. The Post Office Engineering Union's militant London North Central branch, which covers the Longacre site, has said it will not make that connection.

The POU has been waiting more than two months for the instruction to make the connection, but the hold-up appears to be on Mercury's side, not BT's, and the problem appears to be with the PABX. According to a Mercury spokesman "connecting the Mercury lines to the PABX is obviously not as simple as connecting an ordinary PABX up, and we have run into a technical delay. We're now waiting for some printed circuit boards to arrive, and when that happens we assume we will be connected."

Once all that is sorted out Mercury has to organize its truck network. At the beginning of April the company invited tenders for a £20 million contract to supply and install a non-mode optical fibre trunk network. That enquiry was for 630 kilometres of fibre for an initial network that should be in place by the end of 1984.

The network will be in a "figure of three", including London, Birmingham, Leeds, Manchester and Bristol. The missing links between Bristol and Birmingham and Birmingham and the North-east will

be supplied by microwave. The full "figure of eight" network should be completed by the end of 1985.

It is not clear when the order will be placed or when the work will begin on the trunk network, but Mercury says it has told potential suppliers that it is "a matter of some urgency."

Once the order is placed Mercury still has to complete negotiations with the British Railways Board for the use of BR wayleaves to carry the cables. Negotiations there have been held up by the Inland Revenue, over the land development tax. Any landowner making profits out of his land gets taxed on it, but to date no-one has determined whether that law is applicable to wayleaves.

If it is applicable, the implications for the cabling of the UK, as laid down by the recent White Paper on cable television, are enormous.

The implications for Mercury could be vital, too: if British Rail becomes liable for the tax then it would pass the expense on to Mercury. How much that tax could be is a matter of pure guesswork, but it could have a distinct influence on any future plans Mercury makes regarding laying cables.

British Rail is, needless to say, enthusiastic about the possibilities of rearing out the wayleaves to Mercury - it made a loss of £174 million last year. Once the wayleaves are put to use by Mercury then comes the problem of who actually maintains the cables.

The National Union of Railwaymen (NUR) has what it calls a "two-pronged attack" - firstly it

the cheap - the cable operators will stand the finance for the ducts and initial cabling and give Mercury access to an almost ready-made system.

If the White Paper does become law as it stands that could give Mercury a local telephone network by about 1986 at the earliest.

But in the meantime Mercury still has to find some way of making the local links in its network. The simplest way of doing that would be to lease lines from BT, its only competitor.

Another option would be to lease ducts in the ground from other types of companies, such as London Transport. The commu-

However, even if Mercury can get the whole thing together, and operational by 1984 it still has to complete negotiations for the use of international satellites. Those negotiations are ongoing at the moment between Mercury and, needless to say, BT.

Once all the technical and legal problems are solved Mercury still has to face basic commercial problems. The first of these is its one competitor, BT, which, since the formation of Mercury, has surprised everyone with its sudden flurry of business services - KiloStream and MegaStream, Packet Switched Systems and its more recent collaboration with Pacted to provide an international consultancy service for international customers are but a few. BT's National Networks is also installing digital services over an area far greater than Mercury's network.

Mercury's original aim to provide high volume voice and data connections for large organisations pales in comparison. So far Mercury has been totally non-committal about how many customers there are actually signed up. Estimates range from two to a dozen or so. Should the worst come to the worst the government could pressure both government departments and nationalised industries into taking up the private network. Both are thought to have hesitated.

But the main problem appears to be that there are simply not enough companies which want the sort of service that Mercury offers. At a rough estimate the requirement for dedicated lines is less than 4% of the £5 billion UK telecommunications network business, and not all those are in the London area.

Many customers are also probably waiting until Mercury is connected to BT via a third level connection, which will give access

reached some sort of agreement to use the Circle Line of the Underground to carry cables, and is certainly looking at other options, such as the old tram lines in London.

Then there are the international lines. The Littlechild Report, published in February, recommended that Mercury should compete on an equal footing with BT in providing international services. To date Mercury's moves towards an international link have involved placing an order for one Type C earthstation with Marconi, which is intended to connect Mercury's UK customers to business centres in North America by 1984.

The earthstation is to be in the London Docklands area, and Mercury has submitted outline plans to the Port of London Authority.



Mercury fails to take wing - despite the telecoms experience of chief executive Derek Evans (centre), technical director Peter Cott (right) and sales director Stuart Bailey.

through the public network into and out of the private network. That will not be available until 1985 at the earliest.

Until that time the connections will only be through leased lines. Another problem for Mercury is a geographical one. The proposed trunk network goes no further North than Leeds, which cuts off a lot of companies, particularly those in the North-east. If Mercury is aiming for the top companies then it has to go for government offices - the government spends over £200 million a year on telecommunications. But several of the biggest government departments, notably the Driving Licence Centre in Swansea, are outside the proposed Mercury network.

One area in which Mercury looks like having some commercial success is cable television. It has already signed a non-exclusive agreement with Thorn EMI to use the Mercury trunk network for moving EMI's programmes around for the use of local cable operators. That could be the first of many agreements, as only Mercury and BT have the authority to interconnect local cable television networks.

That said, there is no doubt it is going to be an uphill struggle for the private network. The three companies, Cable and Wireless, Barclays Merchant Bank and BP, are committed to an investment of £250 million over the next five years, and returns from that, as with all telecommunications-related projects, will be some time in coming.

But Mercury's hardest battle could come if the present government is returned at the June 9 election. That could herald the beginning of more competition for Mercury in the form of licences for several more private telecommunications carriers.

Mercury's hardest battle could come if the present government is returned at the June 9 election. That could herald the beginning of more competition for Mercury in the form of licences for several more private telecommunications carriers.

Mercury's hardest battle could come if the present government is returned at the June 9 election. That could herald the beginning of more competition for Mercury in the form of licences for several more private telecommunications carriers.

DEXPO™ COMES TO EUROPE

The only exhibition as important as your DEC* Computer

IF YOU ARE A DEC USER

There's a world of products that can make your DEC computer do more. Do it faster. Do it cheaper. Or just do it better. And you'll discover that world at DEXPO Europe. A world of 100 vendors demonstrating all the latest DEC-compatible products. You won't have to sort through irrelevant products because everything applies to your DEC computer.

IF YOU ARE NOT A DEC USER

A chance to see why the world of DEC has become the largest installed base of mini-mid computers. Why others have joined this world and what you are missing. DEC sells a range of computers from the very largest mainframes down to the smallest CP/M-based P.C. All well supported by an extensive variety of third party software.

PLUS A CONFERENCE ON THE COMMERCIAL, SCIENTIFIC AND INDUSTRIAL USES OF DEC COMPUTERS

*DEC is a registered trademark of Digital Equipment Corporation. This exhibition is not promoted, not authorized, and is not in any way affiliated with Digital Equipment Corporation.

CP/M is a trademark of Digital Research, Inc.

DEXPO Europe 1983

WEST CENTRE HOTEL
11111 ROAD
LONDON SW10

29-30 JUNE AND 1 JULY 1983

MAIL TODAY FOR TICKETS OR MORE INFORMATION

☐ Please send me _____ ticket(s) to attend DEXPO™ Europe 1983.

☐ Please send me details on DEXPO™ Europe 1983 conference.

NAME _____

TITLE _____

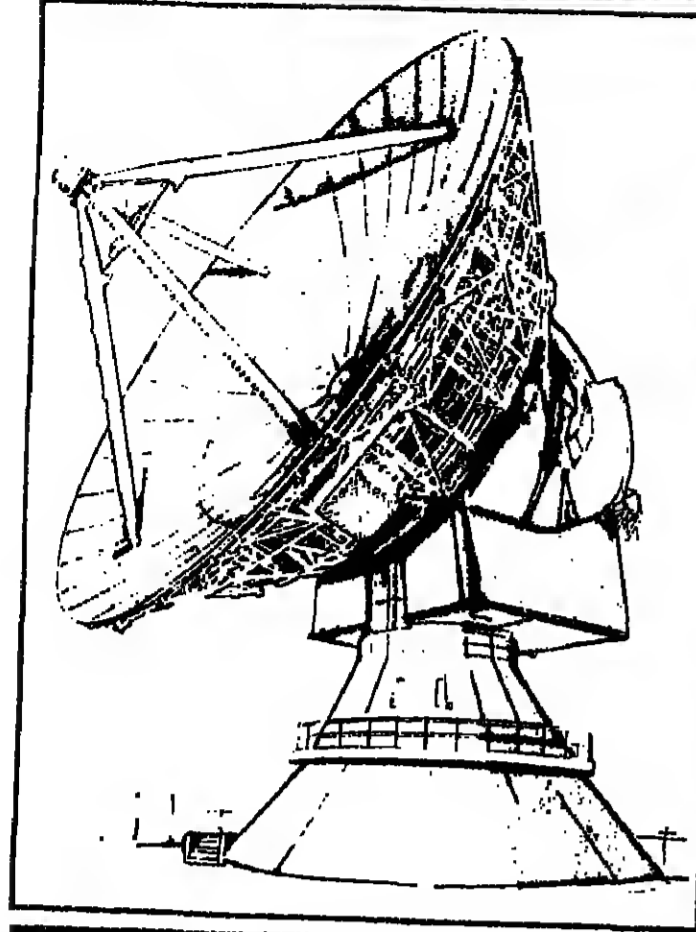
COMPANY _____

ADDRESS _____

TELEPHONE _____

Please return form to:
DEXPO/Europe
Interco Business Consultants Limited
1 Lancaster Park, Richmond TW10 6AG, Surrey
Tel: 01-948 3111 Telex: 894124-INTERCO G

CW



Changing face of the American skyline

The telecommunications business is in a state of flux throughout the United States . . . Howard Karten reports the latest developments

FOR many years, one of the prominent features in the skyline of major American cities has been the veritable forest of antennae on the roofs. The latest addition are the 10-, five-, and even three-meter receiving dishes, aimed just above the horizon.

The dishes are the outward signs of significant inner change in the telecommunications business, and will no doubt propagate at a growing pace in coming years and months.

Predicting the future of telecoms in the US these days is a tricky venture. The entire business is in a state of flux, caused as much by changes in the regulatory

and political environments as by technological advances.

Unlike the mainstream computer industry, it's even uncertain whether real data communication costs are slowly rising or slowly falling.

A hot topic of public debate these days is whether the impending break-up of AT&T in a long-distance connection company and separate local service providers, will force local bills up or not.

The general consensus is that phone bills will rise, since a good deal of the cost of data communications systems is in the "last mile" — the cost of the local loop, as well as the concentrators,

multiplexers, and other hardware at the sending and receiving ends could raise rates significantly.

Until recently, Management Information Systems (MIS) directors have had few real alternatives to choose from in data communications. But as costs go up and competition develops, heavy data communication shops can be expected to turn a sharper eye towards alternatives and cost-cutting methods.

It is also safe to say that despite its mammoth size — dwarfing most other American companies in number of employees, book value, revenues, earnings, and so on — AT&T by no means has a lock on the future.

In addition, in the past few years, more and more aggressively promote itself and to create a reputation for its service. It is currently accessible from more than 200 cities via local phone call, and plans to extend the number soon.

Telenet has recently signed some major accounts — one of them IBM, for its IBM Information Network — and appears poised for major growth, following a start-up period during which few, if any, vendors have had money at the public packet switching game.

Can AT&T adapt to competition?

LARGE companies have often been compared to ships — both, goes the analogy, can change direction, but it takes much longer to do it with a big boat. In the case of AT&T, the big question is, can the company adapt to competition after years of more gentlemanly peddling?

The settlement of the Justice Department anti-trust case against AT&T is instructive here. For years, the company fought break-up. One slogan it used was: "The system is the solution," implying that breaking up the company would seriously damage America's phone service.

A sub-part of this argument was that break-up would in some way damage military communications, since the Defense Department is such a heavy user of AT&T services.

For years, these assertions went unchallenged. But now AT&T was able to obtain favourable terms for an out-of-court settlement, those two arguments vanished overnight.

Telenet and Tymnet also offer private packet-switched networks for large users to seek increased privacy over the public network run by these carriers. Tymnet, smaller than Telenet and more a captive of parent company Tymshare, maintains a low profile.

Both firms, as well as other smaller public value-added networks, might understandably be nervous these days, with the regulated AT&T public VAN (Value Added Network) offering, AIS/NET 1000, running hard to catch up. AIS/NET 1000 will be the first service to be offered by American Bell, the unregulated AT&T subsidiary.

In addition to carrying data between two or more points, AIS/NET 1000 will also perform some processing of that data, ranging from message translation to full-scale data messaging in applications such as order entry, inventory, and so on.

Officials of Telenet, Tymnet and the others tend to put a brave face on their public appearance. This may or may not be merely wishful thinking in the dark. On the one hand, AT&T employees are used to moving at a more stately pace, finding new ways to use (and sell) older, more familiar technology. This could put AT&T at a disadvantage as its sales force attempts to compete with Telenet and Tymnet. Additionally, Telenet and Tymnet have a deeper reservoir of experience in running

packet-switched systems and meeting business needs. Moreover, news reports suggest deep anxiety within AT&T's ranks, as employees ponder the brave new world of competition, high technology, which branch of newly-split AT&T to work for, and so on.

But AT&T is highly skilled. "AT&T knows every circuit everyone is using. It can visit a customer and work up a perfect financial case," notes consultant McQuillan.

With its vast employee pool and prestige, AT&T should have no trouble locating and hiring talented individuals, both within the company and from competitors.

Users of Telenet and Tymnet's public network tend to be relatively low-volume users. Large companies whose usage of Telenet and Tymnet grows over time eventually find their costs are such that they could more profitably invest in building their own networks. And when they begin moving large volumes of data over public networks, large firms — typically, Fortune 500 companies, as well as large banks and insurance companies — tend to start worrying about things such as reliability and security.

The average Fortune 100 company has an average of five-and-a-half networks, made up of modems, multiplexers, and so on," observed Chuck Stein, vice-presi-

TELECOMS

Changing face of the American skyline—from page 18

'AT&T knows every circuit everyone uses'

dent of Bolt, Beranek and Newman. "The concern of the Fortune 100 DP director is that he's been focusing his concern on DP rather than data communications, and his data communications bill is rising. That's when he calls in a consultant to analyse the situation."

And when the consultant arrives, what a plethora of choices he has. Telenet and Tymnet both sell private packet-switched networks, as well as providing public service; BB&N configures networks for clients, buying lines from a common carrier and selling its specialised telecommunications processor to interconnect the different manufacturers' hardware found in most large companies; satellite firms such as Cylis Communications Corp., now a subsidiary of RCA offers medium- to high-speed data communications via satellite; specialised common carriers, such as SP Communications, MCI, and others, compete with AT&T in long-distance communications, and the latest development in telecommunications, cellular telephone service, could well be the development that eliminates the costly "last mile" in data communications.

Cellular telephone service divides a service area into contiguous circles. Relatively low-powered mobile telephones communicate with a base station via radio, the base station is the connection point to the network.

However the "telephone" can remain stationary and communicate with, for example, a satellite base station, says McQuillan. This would eliminate the costly local loop charges. At present the Federal Communications Commission is reviewing more than 20 cellular telephone proposals.

"Those businesses will co-exist (with other forms of telecommunications) for a long time," predicts BB&N's Stein. "Large, dispersed organisations are finding that they've been ignoring the importance of communication. I think that means this business is about to take off."

Making a packet from switching

PACKET SWITCHING has its origins in a military research project begun more than a decade ago. DARPA, the Defense Advanced Research Projects Agency (part of the Department of Defense), sought a method of transmitting data in a more secure manner. A secondary motivation was to develop a communications network which would be capable of operating even if a part of it were destroyed.

The increased security was to come about by transmitting a message in parts, each part taking a separate transmission path. Survivability was to be obtained by eliminating central control of the network, by making nodes independent of one another. The final product, produced by Bolt, Beranek and Newman, was called Arpanet.

Arpanet today connects universities, defence installations, and research facilities across the US. In addition, there are nodes in the UK, Norway, and other countries.

Like many other military projects, this one was seen to have application in the civilian sector without compromising the military effort. This civilianisation was termed packet switching, and has found widespread — if not necessarily profitable — use in the data processing world today.

The public packet-switched market today is usually estimated at somewhere between \$200 and \$250 million. Market observers predict growth ranging from 30 to 50% a year for the next few years at least.

Some analysts predict that when American Bell's AIS/NET 1000 officially goes online in September it will provide a big boost to the entire business.

Five US firms are now particularly well-known for their public

packet switched networks, on a common, dial-up basis. GTE Telenet, a subsidiary of GTE, of Stamford, Connecticut; Tymnet, a subsidiary of Tymshare, of Cupertino, California; Autonet, run by Automatic Data Processing, of Ann Arbor, Michigan; Uninet, run by United Information Services, of Kansas City, Missouri; and Graphnet, a subsidiary of Graphic Scanning Corporation of Vienna, Virginia.

The largest of these, in size, use, and public recognition, is GTE Telenet, which has recently begun to produce a profit. It connects a large number of commercial database producers, and has nodes in virtually every large US city.

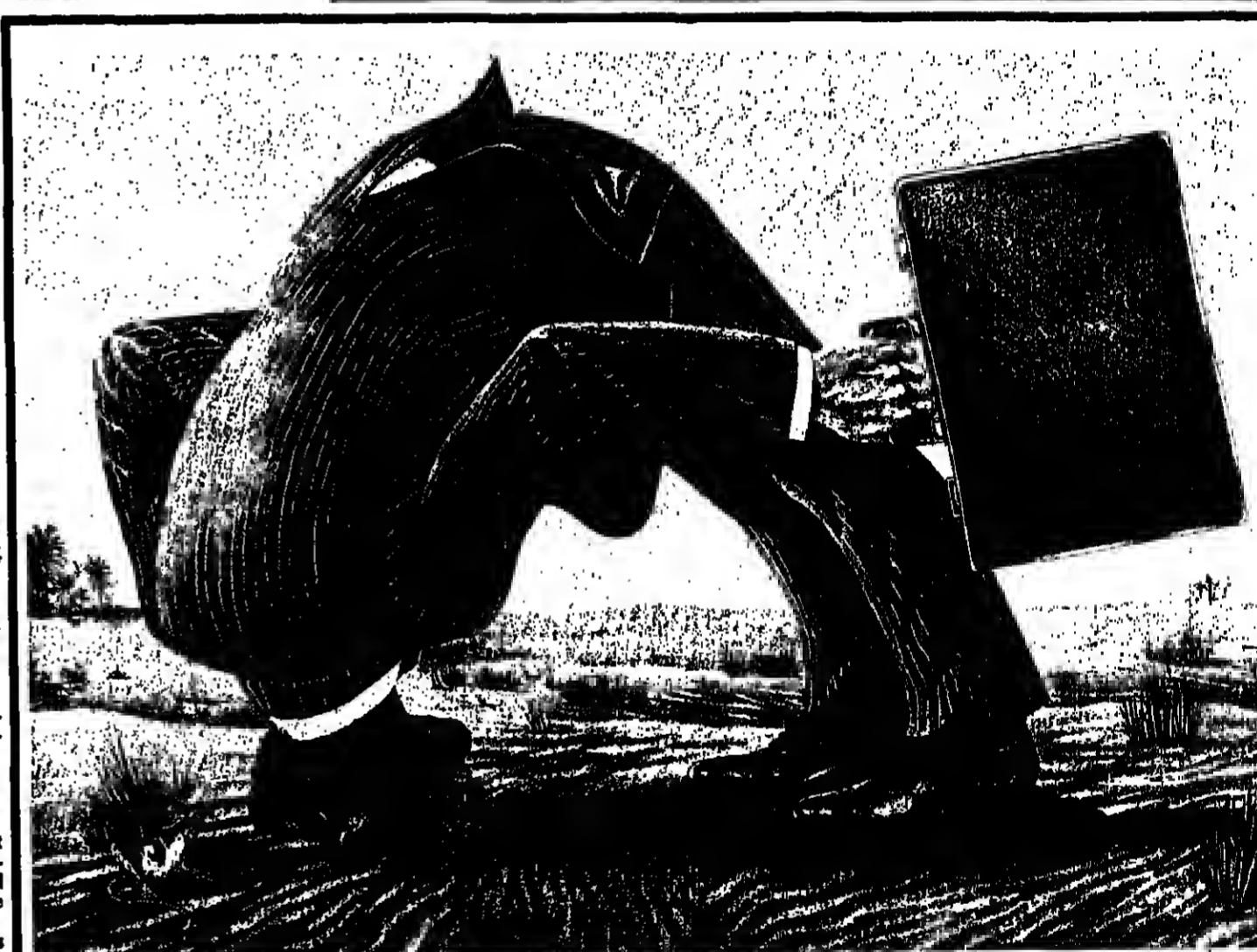
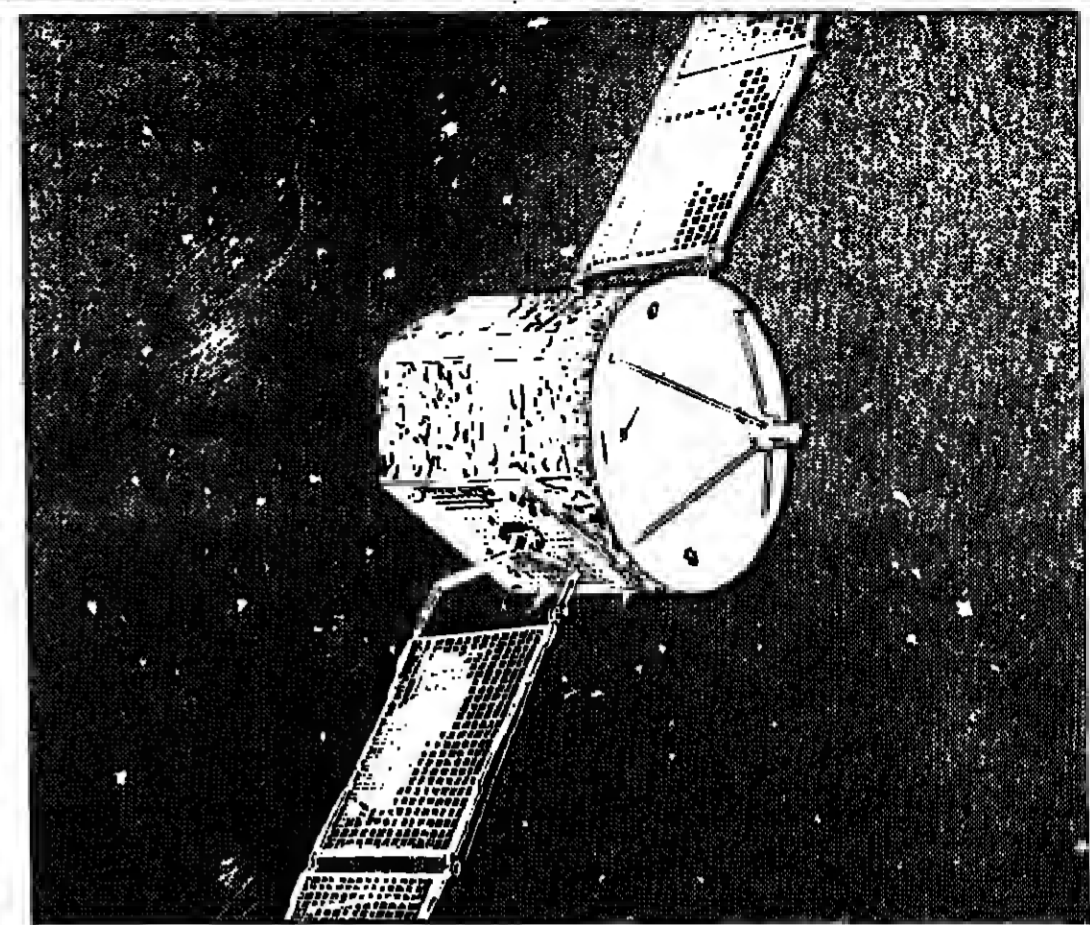
Like the others, Telenet leases high-speed telecommunications lines from AT&T as well as other sources.

For a long time, GTE Telenet was something of a commercial curiosity. An early entrant with a good record of service and reliability, providing an apparently much-needed (and certainly much talked-of) service, it was nevertheless unprofitable. In the past year or so, GTE Telenet has apparently begun to seek out customers more aggressively.

Telenet, with the largest market share, connects a particularly diverse group of hosts: interactive computers, database providers, electronic mail users, and so forth.

Next largest is Tymshare, which is especially heavy with conventional time-sharing computers as well as database providers.

Uninet has a large percentage of remote job entry users, while Autonet is heavily into time sharing. Graphnet, the smallest, most recent entry, is particularly oriented to message transmission.



Our field maintenance is not like burying your head in the sand...

The reason is quite simple. Cable and Wireless UK Services has operated for more than a century in servicing and supervising maintenance operations to ensure complete client satisfaction.

We are flexible to tailor whatever requirements you may have and over generous with knowledge, skill and international resources to maintain equipment from one manufacturer to mixed multi-computer systems, at a speed and efficiency that makes our competitors stop and think twice.

Each of our maintenance centres have the right testing equipment with qualified engineers to carry out repairs on sophisticated data processing, telecommunications, terminal equipment, including Data General.

DEC plus specialised equipment for testing telegraph and data transmission circuitry. From strategic locations operated throughout the United Kingdom offering the extensive range of reliable



WE HAVE CONNECTIONS
Cable and Wireless UK Services Limited
83 Blickhams Road, London SE1 8HQ
Telephone: 01-433 9577 Telex: 915433 CAWUKS G

back up facilities, including the rapid replacement of spare parts. Cable & Wireless UK Services will maintain your field equipment without the need for you to bury your head in the sand. For more information post the coupon — Today.

Please send me details on your field maintenance services. I'm interested in:
Name _____
Position _____
Company _____
Address _____
Telephone _____
Cable and Wireless UK Services Limited

Micro Systems & the DP Professional

Kensington Palace Hotel London

7 - 9 June 1983

THE Micro Seminar for professionals, by professionals

Single user systems — their capabilities & limitations
personal computers — special purpose workstations
peripherals

Multi user systems
time-shared single processors — memory management
terminal workstations

Connectivity
remote & local connections — remote batch & interactive
communications — Elhamat, Rings, PABXs, X25, System X
transmission v local storage — intelligent terminals

Operating systems & language processors
CP/M, MS-DOS, UCSD, Concurrent CP/M, MP/M & UNIX
review of available language processors: BASIC, COBOL, PASCAL, PL/I

Telecommunications & the new generation applications environment
standards & security — the mainframe as a peripheral — new
dimensions to local intelligence

Packages & tools
standard packages — cost, quality & performance — flexibility
software generation tools — documentation

The challenge to the DP Manager
the impact of the microcomputer on corporate mainframe
computing

Online Conferences Limited

Argyle House, Northwood Hills,
Middlesex HA6 1TS, UK
Phone: Northwood (0224) 2421

Please send me details
of the Micro Systems
seminar.

Name _____

Initials _____

Position _____

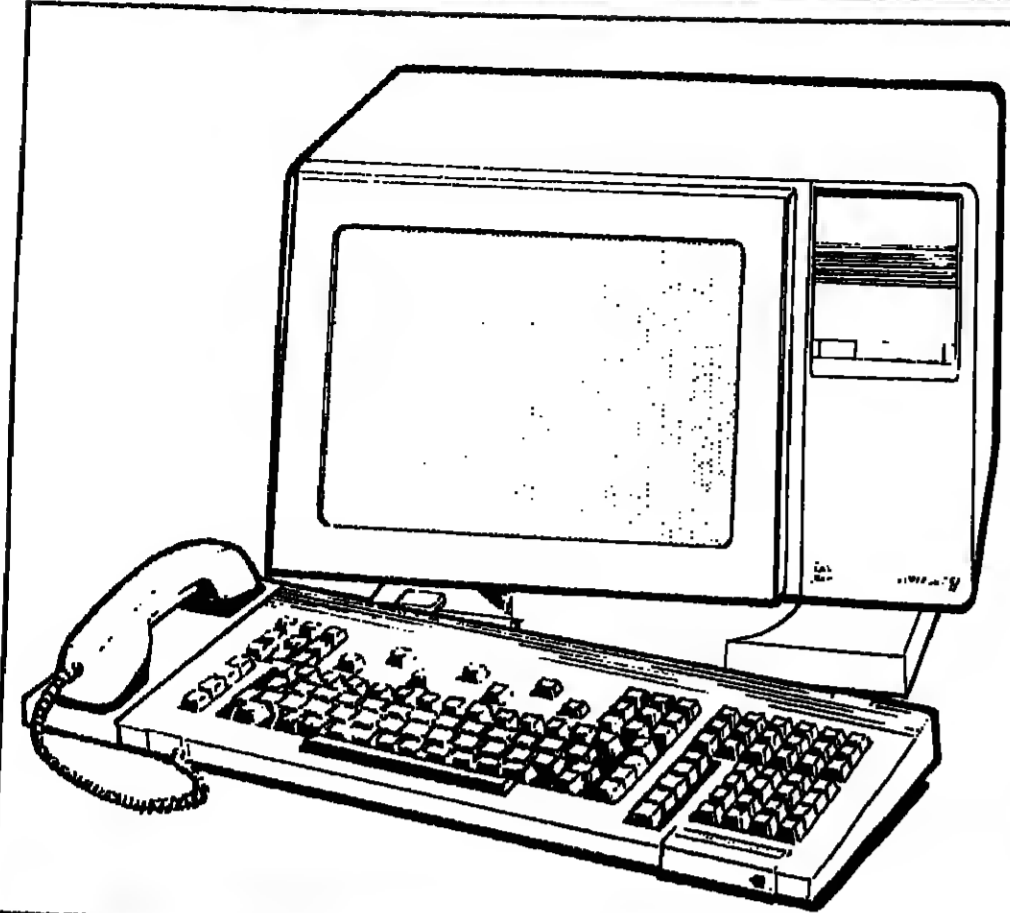
Organisation _____

Address _____

Tel No _____

MS/DP

Continued on page 19



Central role for PDX in in-house networking

Hedley Voysey takes a look at the digital private branch exchange

THE major telecommunications suppliers, with a long history of exchange supply, have always maintained that the digital private branch exchange will be one of the prime means of in-house networking. These firms have a vested interest in buyers of the PDX (as the private branch exchange in digital form is generally referred to) regarding it as the hub of many data forms of communication as well as voice.

However, the expectation has grown among networking specialists other than those selling exchanges that the role of the PDX

will be a central one.

Gary Christensen, vice-president for development at Network Systems Corp., said in London recently: "The PDX will be very important to many users and, numerically, probably the largest slice of users for data attachments."

Network Systems Corp (NSC) has no axe to grind here as the three tiers of interconnection it is engaged in slotting into place in the networks of the world are neatly arranged to buttress several forms of network design.

The fast Datapipe slotted pipeline runs at 275 megabits per second and is aimed at clustering the most powerful computers in the world together.

The standard Hyperchannel at 50 megabits per second links mixed supplier hosts, tidies up peripheral subsystems and generally makes back-up sites a reality instead of a hope.

Where the PDX comes in is to fill out the user area.

What NSC sees as happening is that its Hyperbus local bus structure will have a backbone lane. The side streets on one side may also be 10 megabits per second Hyperbus links, but on the "other side of the street" will very likely lie a Wangnet or a PDX. Very often, according to Christensen, it will be a PDX.

Andre Schwager, Hewlett-Packard's head of the Information Systems Network Division is even more positive. He said: "Hewlett-Packard has committed itself to the use of the PDX as the principal communications method for its future computer networks for the office."

A development schedule is under way which will ensure that exchanges from Rolm, Northern Telecom and Intecom will be usable to access H-P 3000 computers.

Datapoint is also focusing work on connecting up to PDX in its future forms, and in France Thomson-CSF is setting out a strategy and product introduction plan which makes digital exchanges for in-house use an essential part of networks for office automation.

And so the roll-call goes on with the obvious listing of major exchange suppliers, but now with almost equal clout being exercised by computer companies and networking specialists.

The degree of conviction varies however. John Weeks of CAP's communications division, says: "The likelihood that bursty traffic for database queries, messaging systems and the non-file transfer kind of traffic will often be routed through the PDX is pretty high, but heavier flows of data are another matter."

Mixing voice and data across digital links is not easy. At the local area network end of the business a low speed version of Ethernet running at 3 megabits per second has shown a capability for handling 35 conversations without severe loss of quality, and maybe more if better "coders" are used.

Many more studies into the use of full speed (10 megabits per second) Ethernet are being pursued and the sustainable mix of voice and data traffic will eventually emerge. Part of the problem lies with the fact that to avoid poor quality in the voice side of the network, the voice packets may

have to have some priority to put them over the top of data traffic.

There are plenty of schemes for doing this kind of streaming, but they all have one nasty point in common — they ruin the splendid simplicity which is at the heart of both Ethernet and ring type local area networks.

The wide area networks are dominated by complex issues and the hope has always been that these complexities could be avoided by the management of local area networks.

These hopes are beginning to fade somewhat.

It is interesting to reflect that much of this flurry of network design to back up office automation has aimed to replace some very primitive, but useful systems based on straightforward digital switches. The Micom switch which comes in several forms simply provided the user of a terminal with a way of dialling up a port among a mix of computers connected to the switch.

The whole idea is crude and if there are very large combinations

The PDX will be very important to many users and numerically, probably the largest slice of users for data attachments.

of both ports and terminals, the cost gets out of hand when compared to the cost of establishing a more formal network design.

The advantage of establishing a more formal network design is that policies for handling overloads are created and the regulation produced is on hand to process errors and certain failures on the part of subsidiary portions of the resources in the exchange or network.

The exchange as a manager must try to keep mailboxes open as long as it is in some working shape, but many other optional services can be regarded in the same way as conventional operating systems regard processes — that is to say they can be created and then made to disappear to avoid cluttering up the place when there is no demand for a particular service.

The overhead for doing this can be offset to the extent that this enables the services to be modified without interfering visibly with users' rights and expectations.

It is not obvious how the cost crop of PDX products is going to pitch itself as between the crude simplicity of the basic data switch linking any terminal to any port, and the extreme concepts advanced in digital exchange design which turn it into a cross between many operating systems and a critical part of a generalised network architecture — in the latter case complying with all the concept embodied within the Open Systems Interconnection model and its seven layers.

One suggestion uses addressing features to enable heavy traffic "calls" made via the exchange to be routed via a hierarchical bus structure resembling the NSC's Hyperbus design. Other ideas devote some fixed capacities to certain connections within the exchange to defer the examination of overloading by file transfer traffic

TELECOMS

Varsities told to bring their networks into line

Donald Kennett examines the urgent task facing UK universities

UK UNIVERSITIES and research bodies are faced with the urgent need to rationalise their networking arrangements. That message has been brought home by the upsurge over the last year in their data communications activities.

Fortunately, this need coincides with the fruition of a number of projects designed to help unify the various different types of communication links currently in use, and also designed to extend their capabilities to support new applications.

The projects were initiated by the Joint Network Team, set up in 1979 to plan a detailed programme for a cost-saving approach to developing the communications facilities being paid for by the Department of Education and Science.

The JNT decided early on that there was little point in rushing to provide simplified basic mechanisms for interconnecting different computers while there were no standard protocols available to make them usable. So it commissioned more than 40 development projects for hardware and software to interface the various components of an embryonic open systems architecture to each other

and to the devices that would use them.

From an initial consideration of the problems of wide area networking, between individual universities and major computing centres, the JNT found itself concerned with local communications, as user terminals and minicomputers were decentralised into the various university departments and research establishments laboratories.

The proposed unified network has been made the responsibility of a Network Management Committee set up in 1981, whose first finding was that there was widespread opposition among the autonomy-minded academics to the idea of a single new private network to support all its communications.

This was to have provided the most cost-effective solution, but the users succeeded in justifying the various ad hoc links they have continued to set up for specialised purposes and woo their argument for a more expensive evolutionary merging of facilities.

The committee also considered a wholesale transfer to British Telecom's Packet SwitchStream, which would have cost at least £1 million a year at current traffic

levels and would have made cost control very tricky. Further alternative public network solutions that had been proposed turned out to consist of no more than different ways of paying for PSS usage.

Pressure from users also arose in the form of an interest in implementing Ethernet buses for local communications. The JNT responded to this by setting up a performance comparison between an

The transfer to fully standardised networking when international standards replace the interim ones should involve far less effort, because the most difficult part will have been to build the layered architecture

Ethernet and a Cambridge Ring, for which the JNT has been implementing various interfaces and higher level protocols since 1980.

The lack of standards for these interfaces and protocols has been a limitation on the use of both Cambridge Rings and Ethernet buses.

The JNT's goal is ultimately to have the whole academic community running on internationally agreed standards for interfaces and protocols. This will give users complete freedom of choice of the



Manchester — one of the universities faced with a need to rationalise networking arrangements.

equipment on which the standards are implemented. But it presumably wants to avoid unnecessary duplication of development effort.

It would also logically be keen to build on developments coming from the community it exists to support.

The Team's report for last year comments that the exploitation of the Cambridge Ring was held up

by a lack of standardisation among various implementations of it. This was rectified last year when the JNT initiated a collaboration to produce a standard specification for Ring components designed to operate at 10 Mbits-per-second, called CR82.

This has now been taken up by the Department of Industry's Information Technology Standards Unit, which is having it rewritten in the form required by the British Standards Institution for BS specifications.

The Dol's Focus committee on standards has given the original document Intersect status in its standards promotion programme for industry, which means that the document is to be regarded as close enough to the form in which it will eventually emerge as a British standard for it to be used with confidence.

The design is also to be developed to operate at 100 Mbps for high-performance processor-to-processor interconnection.

Of the £1.2 million worth of contract development work that was on the go at same time during last year, £435,000 was for projects connected with the Cambridge Ring.

The largest single project was the Mace (Modular Access Control Equipment) intelligent node designed to provide a direct memory access interface for minicomputers and mainframes linking in at the Transport Level of the Open Systems Interconnection model.

This work was carried out over 18 months by ICL and the Cambridge-based microcomputer networking company Orbis at a cost of nearly £245,000.

High-bandwidth local area networks such as the Cambridge Ring

are regarded as the type of facility that will be considered essential in a few years. But until comprehensive standards are available for them, they will only be used where they can be supported by a fair amount of in-house development effort.

This should start to change this year, with the arrival of devices such as terminal concentrators, bridges for connecting one Ring to another and software to support Ring connections on minicomputers. The implementation of interfaces up to the Transport Level should also make interim higher level protocols developed for X25 packet switched networks usable over Cambridge Rings, as well.

And the transfer to fully standardised networking when international standards replace the interim ones should involve far less effort, because the most difficult part will have been to build the layered architecture in which both are based into the operating systems of the networked processors.

Protocol implementations are what accounted for the remainder of the JNT's £1.2 million development expenditure. An early JNT decision was to recommend the use of the interim UK protocols defined in a set of books of various colours collectively referred to as the Rainbow Books.

Firm specifications for these — they include file transfer, job manipulation, terminal handling and electronic mail — and implementations under different operating systems have been emerging over the last two years. They have been progressively put to use in academic computer centres and now the JNT reports a widespread acceptance of their importance, where before there was misunderstanding and scepticism.

A dramatic change during the last year has been reported from computer manufacturers who have been asked to implement Rainbow Book protocols in tenders to supply equipment.

■ Turn to page 22

Security program

As every DP manager knows, good data protection starts with a lock on the computer room door.

Unfortunately, ordinary locks cause delay and inconvenience to authorised users.

The Unican 1000 from Warsaw provides a simple and effective answer without the need for keys.

It's a self-contained, weather-proof, pick-proof push-button combination lock.

Fitted in place of an ordinary lock, it controls access without causing delays, thanks to its simple one-handed operation.

To keep things simple, the inside knob allows free exit at all times.

In the event of a breach of security, management can quickly change the combination.

The Unican 1000 is easy to fit and being mechanical is unaffected by power cuts.

At prices from only £175, it's also a reasonable way of protecting your valuable programs. Telephone or write for our leaflet.



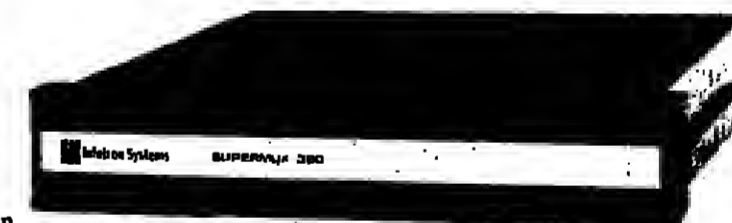
Unican 1000.

NOW! Economy multiplexing with Infotron reliability

The Supermux 380 reduces telecommunication costs and simplifies a network operations. It is easy to install, operate, maintain and expand. It allows up to eight remote asynchronous terminals to share a single telephone line. Seven sets of modems and seven telephone lines can be eliminated. At the same time Supermux 380 units protect data from telephone line "hits" that can cause errors.

The Supermux 380 employs the latest state-of-the-art technology to bring new economy and greater reliability to data transmission. Standard equipment includes many features found only as extra cost options on competing units.

- * Four and eight channels
- * Independent channel rates
- * Data protection using ARQ
- * Master/slave down-line loading
- * Flow control protection
- * Automatic baud recognition
- * Satellite facility support
- * System diagnostics
- * Individual channel diagnostics
- * Optional integrated data set with asynchronous channel



Supermux 380

High-performance, flexible multiplexing from Infotron

Supermux 600 Series multiplexers enable you to reduce telecommunication expenses, maximise the utilisation of all network resources and obtain the necessary information to manage your network operations.

Supermux 600 Series can collect inputs totalling 307,200 bps and concentrate them over one or two high speed links, error-free. Asynchronous terminal users can select and control for any compatible computer port.

Supermux 600 Series is simply itself. An untrained user can be walked through system programming and testing with English language prompting instructions and "HELP" files.

Installation does not require any modification to existing equipment, and the units are transparent to terminals, CPUs and software.

Supermux 600 Series provide the high performance, flexibility, console control and growth capabilities typically associated with large network concentrators.

- * Data protection
- * High performance asynchronous and synchronous inputs
- * Single or dual output links
- * Switching and contention capabilities
- * Advanced system programming features
- * System management and control capabilities
- * Individual channel diagnostics
- * Optional integrated data set



Supermux 600 Series

Please send me details of the

Name _____

Position _____

Company _____

Address _____

Telephone _____

Infotron Systems Ltd.
Poundbury Road, Dorchester, Dorset DT1 1TQ.
Tel: (0305) 66016 Telex: 417276 SYSTEM G

Infotron Systems

Please send me details of the

Name _____

Position _____

Company _____

Address _____

Telephone _____

Infotron Systems Ltd.
Poundbury Road, Dorchester, Dorset DT1 1TQ.
Tel: (0305) 66016 Telex: 417276 SYSTEM G

Impressive orders cannot disguise the burden that taxpayers carry for two of France's biggest telecom manufacturers, says Jack Gee

Jobs threat as French face mounting losses

We estimate that a \$500 million market exists in the US for time-division switching. We are confident that CIT-Alcatel can carve out a good share for itself

FRANCE's telecommunications industry is making impressive inroads on international markets at a crucial moment when two of its three leading manufacturers are giving rise to increasing concern. Thomson-CSF, until two years ago the most profitable of the three, has been in a state of decline since the takeover of the Thomson-Brandt group (which was nationalised in 1982 with the four other major French industrial groups), and Compagnie Générale des Constructions Téléphoniques (CGCT), bought from ITT after arduous negotiations, are now a heavy burden for their principal shareholder, the French taxpayer.

But Compagnie Générale d'Electricité continues to reap profits under state ownership and, through its subsidiary CIT-Alcatel, is enjoying 30% of international orders for time division switching exchanges.

TSS-Alcatel, the US operation of CIT-Alcatel which is based at Reston, Virginia, recently finished the main development of the E-10 system which has been specially designed to meet American standards.

The first two E-10 exchanges are now starting up in the Indianapolis area. Marketing will begin later this year among US independent telephone companies.

Georges Peberreau, chairman of

and chose last year to head CGE after nationalisation.

Last year consolidated turnover rose 15.9% to FF12,446 million (£1.1 billion). Some 40% of this was accounted for by public telecommunications. The balance came from office automation and professional electronic systems and services.

Exports rose by 50% to almost FF5 billion. Profits are likely to come close to the 1981 level of FF744.4 million.

CIT-Alcatel has set up an Irish affiliate, Ceannanus Mor (Alcatel Ireland) with a production facility in Randon, County Cork. When it becomes fully operational, this plant will provide over 300 jobs. Telecommunications equipment and electronic products for both the Irish telephone system and export are being made there.

The first E-10 digital exchange has now been operating for 18 months at Ceannanus Mor. Others are scheduled for Bantry, Donegal, Sligo and Dublin.

But the biggest feather in CIT-Alcatel's cap is the signature of a set of contracts with the Indian government and Indian Telephone Industries (ITI).

CIT-Alcatel is supplying India with 200,000 digital electronic E-10 lines as well as trunk exchanges using the same technology. The first subscriber exchanges are now being installed at Bombay.

The agreement with ITI requires CIT-Alcatel to supply a factory with initial capacity of 500,000 lines and the relevant technology. The French firm has also undertaken to work with the Indians on development of a small capacity digital exchange specially designed for country areas.

All this adds up to FF2.5 billion (£225 million) in revenue for CIT-Alcatel. But, when a trunk exchanges factory also gets under way — as the French and the Indians hope — the total deal could exceed FF3.2 billion.

Thomson-CSF has fared less well with its MT 20-25 exchanges. Development difficulties have delayed their entry into service both in France and abroad. But 3,600,000 MT transit and subscriber lines have now been cut over or are under order.

The company forecasts a turnover of FF3.5 billion (£320 million) from its public switching orders of which 40% will originate from export orders.

MT 20-25 exchanges have been cut over in Athens, Bogota, Baghdad, Amman, Apollonia as well as in Aubervilliers, Amiens and Nancy for France's PTT.

The move from electro-mechanical exchange production to digital time-division units has caused serious employment problems for the French telecommunications industry. The new exchanges require only one-fifth of the manufacturing manpower of the old type.

The slowness of the industrial breakthrough of Thomson-CSF's MT 20-25 and the cost of shedding workers involved in making the previous generation of switching exchanges provide an explanation of the firm's parlous financial situation. For the past two years its losses, the first in its history, have been mounting alarmingly.

But in spite of Thomson's problems, France has been marking up spectacular successes in exports of telecommunications equipment at a time when its trade balance in electronics and computer products has been deteriorating.

Sales of telecom items abroad rose to FF26.4 billion between July 1981 and June 1982, confirming an upward trend which began in 1979. Total foreign sales for 1981 were FF4.5 billion (£400).

The top contracts included a Thomson order from Iraq for supply of 30 MT 20-25 exchanges worth 850 million francs (£68 million) and the massive Indian contract won by CIT-Alcatel.

But, booming export orders for time division exchanges provide no solace for Compagnie Générale des Constructions Téléphoniques, the ITT subsidiary for which the French government paid \$30 million last summer.

CGCT has obtained government guarantees that its existence as a separate company will be safeguarded. But the firm is still trying, without any apparent success, to obtain FF2 billion in urgently needed cash to develop profitable new computer-based telecommunications products.

General manager for Perkin-Elmer



Hanley

PERKIN-ELMER Data Systems has named Brian Hanley as general manager of its UK operations. He joined the firm eight months ago as national sales and marketing manager after 20 years in sales and marketing management with Olivetti and Honeywell.

Hanley joined Olivetti in 1963 and was one of the company's top salesman.

He moved to Honeywell in 1969 to sell large computers and by the end of his first year, he was

Honeywell's top UK computer salesman.

By the end of year two, he had moved into the management of sales activities in medium and large systems. During his 14 years with Honeywell, Hanley was responsible for £84 million worth of business.

He collected the top Honeywell sales awards across all the company's product lines from minicomputers to the largest computers in the Honeywell range.

NCR's financial systems division in the UK is to be split into two. Mike Newley has been appointed manager of the general financial division which will look after UK and overseas banks, building societies and other financial institutions. He started his career with NCR in 1970 as a systems analyst. The new-styled financial systems division, which will concentrate on the major UK clearing banks will be run by director Sean Dixon-Child. Charles Exley, president of NCR Corporation since 1976, has been designated as the company's chief executive officer. William Anderson, NCR's chairman, who since 1973 has served as chief executive officer, announced earlier this year his plans to retire as chairman next year at age 65.

CMG Information Services (Scotland), part of Europe's largest independent computer services bureau, has made two senior appointments. Bob Hare has been appointed senior consultant. He previously worked with CMG for eight years before joining an Edinburgh-based computer consultancy for three years, prior to taking up his new appointment. Bob Stinton has been appointed information consultant. He transferred from CMG's Middlesex office.

Stuart Walsh (below) has been promoted to director at MSA (Management Science America). He joined the company in November 1978 as sales executive and in January 1981 was appointed sales manager for the UK.



DIARY

- JUNE 1** Computers in court — DP and the law. IDPM Central London branch. Altergo, 15-19 Kingsway, London WC2. 6.00.
- JUNE 8** Chloride Standby Systems. 18E1E, Polygon Hotel, Cumberland Place, Southampton.
- JUNE 9** Wine tasting/social event. IDPM Sheffield branch. Fountain Precinct, Sheffield. 7.00. Tel: John Reedman on Sheffield 618539.
- JUNE 10** Meeting. Electronics for Peace London branch. Wren Coffee-house, Jeremy Street, St James's Church, Piccadilly. 7.00. All Welcome.
- JUNE 13** Tomorrow's staff — where are they now? IDPM Norfolk branch. Castle Hotel, Castle Meadow, Norwich. 7.30.

CONFERENCES

■ The Practical Use of Local Area Networks is a conference for managers on both data processing and managerial services who wish to benefit from the experience of current LAN users. Speakers have been invited for their experience of selecting, building and using a variety of the LAN equipment available. Conference speakers are Dr Brian Spratt of Kent University, Peter Knowles of John Laing Construction, Peter Vickery of Citibank, Brian Parker of Provident Mutual and Adrian Norman of the Cabinet Office, with Lawrie Lawrence of Midland Bank as chairman. Emphasis is on the practicalities from the senior management point of view.

The conference, presented by BIS Applied Systems, will be held on June 23 at the Cavendish Centre, London.

Details and places at £140 plus VAT may be obtained from Cherry Bignmore on 01-261 9237.

UMIST PASCAL PROGRAMMING

September 5th-8th, 1983

This course teaches the Pascal programming language and its use in the development of well-engineered high quality software. It will be of interest to programmers and engineers in industry and commerce who wish to obtain a practical introduction to the language. The course work is divided equally between lectures and practical exercises using microcomputers running the UCSD Pascal System. No previous knowledge of programming is assumed.

Course fee: £250.

Further information from: The Registrar, The University of Manchester, Institute of Science and Technology, P.O. Box 88, Manchester M60 1UD. Telephone: 061-275 3311, Extension 273; Telex 986094. Closing date for application: 18th August, 1983.



Richard Wodman, marketing director of Dragon Data (right) receives a special golden cassette from Peter Fanshawe, sales director of Kiltale, to mark the production of Kiltale's one millionth data cassette. Production is now over 100,000 tapes a week.



Office Automation—we'll show you how!

The integrated, automated, cost efficient office. Five years ago it was a fantasy. Today it's becoming fact.

And it's a fact you can't afford to ignore. Not when office costs are totalling nearly half of your business overheads. Not when your executives are wasting almost one third of their time trying to get information from within your organisation.

The Office Automation Show & Conference gives you a chance to catch up with the reality of the situation.

It's a chance to examine, to discuss, to understand and to invest in the latest developments in the systems world.

You'll get the plain facts on a range of techniques like viewdata, electronic mail, local area networks, management workstations and communications systems and how they all come together in the integrated office of today.

How have communications changed the role of the microcomputer? How is British Telecom adapting to its new competition? What do the experts think of the latest products on the market and can they help you?

You'll get all the answers at the Office Automation Show, and conference sessions will then put those answers clearly into the context of modern business, relating the benefits to your specific interests.

Whatever your business—banking, accountancy, insurance, law, retailing, manufacturing, whatever—the cost-effective management of information and increased office efficiency have never mattered more.

Find out more about the complete solution, fill in the coupon and send it to: Office Automation Show, 232 Acton Lane, London W4 5DL. Tel: 01-747 3131 during office hours. Telex: 936028.

Office Automation Show/Conference

Barbican Centre, City of London, June 7th-9th 1983

FREE TICKETS WORTH AT LEAST £3 + CONFERENCE PROGRAMME

☐ Please send complimentary tickets for me and my colleagues.

☐ Please send me a copy of the Conference Programme.

Name _____ Position _____

Company _____ Address _____

Telephone _____

☐ I am interested in exhibiting at the Office Automation Show.

Nobody under the age of 18 will be admitted.

Bring networks into line

From page 21

The JNT also recommended to the Alvey Committee that Rainbow Book protocols be used by participants in the UK fifth generation development programme and was gratified to see it become part of the Alvey report.

The JNT is now helping to urge the software packages that implement the protocols on to a wider user base through the British Technology Group, through universities and companies where the development work was done.

Although the protocols allow the range of applications that are developed to be enlarged, previously available protocols were proprietary ones for specific tasks

such as access from a specific type of terminal to a specific operating system — the JNT thought that integrating voice and data traffic was still a few years away from being an economic proposition.

Traffic patterns and initial installation costs differed widely and for the time being different systems would continue to be installed for different purposes.

But users should keep a close eye on emerging standards and products. And already there were applications outside the traditional areas of data processing, such as electronic mail and teleconferencing that were becoming viable and that would provide high-quality communications facilities valuable to research workers.

PREVIEW + BUSINESSMEN'S PREVIEW + BUSINESS

If you're a manufacturer, supplier or distributor of personal computer hardware or software, or a professional or business user of personal computers, come along to the businessmen's preview of Britain's biggest micro show...

THE Computer Fair Earls Court, London June 16-19, 1983

Personal computers
Home computing
Small business systems

Sponsored by Practical Computing and COMPU-TECH

Businessmen's preview Thursday June 16 10am-1pm

This year, for the first time, there will be a special preview of Britain's Biggest Micro Show, enabling business people to see the wide range of personal computers and small business systems being shown by over 180 exhibitors.

And, of particular interest to business people needing advice on the acquisition and introduction of microcomputers is a free consultancy service provided by staff from the Federation of Microsystems Centres.

Apply now for an advance Registration Form to gain Free Admission.

This concession is available only to bona fide business/professional people and children under 16 will not be admitted during the Business Preview. An advance registration form will be sent to you only on receipt of the attached coupon (fully completed) together with your business card.

Please forward me..... (Please state number) registration form(s) for The Computer Fair Businessmen's Preview. My business card is attached.

Name _____

Position in Company _____

Company _____

Address _____

Return to: The Exhibition Manager, The Computer Fair, Read Exhibitions, Surrey House, 1 Throley Way Sutton, Surrey SM1 4QQ

The North of England's own computer systems, peripherals and software exhibition...

COMPEC NORTH '83

Belle Vue, Manchester.
June 21-23, 1983.

If your company owns or is thinking of buying a computer, visit COMPEC NORTH '83, the only exhibition in the North of England for serious computer users and DP professionals.

On show will be mini- and micro-computers, small business systems, software, printers, terminals, other peripherals, telecommunications equipment and word processors. This exhibition offers you an unequalled opportunity to meet and discuss with the experts, hardware and software best suited to your company's requirements.

Opening times are: Tuesday June 21, 10am-6pm
Wednesday June 22, 10am-6pm
Thursday June 23, 10am-4.30pm

Apply now for your
FREE ADVANCE REGISTRATION TICKETS

Return to:
COMPEC NORTH '83

Tickets,
Reed Exhibitions,
Surrey House,
1 Throwley Way, Sutton,
Surrey SM1 4QQ.

Compec North is a Computer Weekly exhibition in association with Systems International, Computer Talk, Software and Practical Computing, and is organised by Reed Exhibitions, all members of Business Press International Ltd.

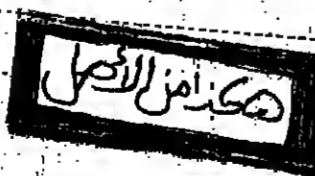
Please send FREE advance registration tickets for
COMPEC NORTH '83 to:

Name

Job Title

Company

Address



PRODUCTS



The Model 8374 letter-quality daisywheel printer from CTL.

Low-cost letter quality daisywheel printer

A LETTER quality printer for the CTL Series 8000 range of computers, the Model 8374, is launched by Computer Technology, which says that it offers the print quality of a modern electric typewriter on single, cut-sheet stationery.

It is well suited to applications which combine DP and word processing, for example legal, export and Customs documentation and the production of management reports on normal office stationery.

The 8374 is a microprocessor-controlled receive-only printer which provides key facilities required by word processing applications including underlining, bold or shadow printing and simple text justification. Printing pitch is selectable from six to 18 characters per inch, and line spacing is variable between 1 and 10.

The daisywheel impact-printer continuously forms characters at a nominal rate of 40 characters per second. The bi-directional print

carriage is automatically controlled, and this minimises the movement of the print-head and considerably enhances the printer's productivity.

Ease of operation is one of the features of the new printer. The daisywheel can be changed by the operator and the long-life fabric print ribbon, in either black or black/red, comes in the form of an easily replaceable cartridge. In addition there is automatic paper feeding and accurate alignment of stationery fed from hoppers to keep operator intervention to a minimum.

The letter quality printer offers two alternative feed mechanisms, either a single bin or a double bin cut-sheet feeder. The double bin allows the user to interleave pre-printed headed notepaper with plain continuation sheets. Both devices are interchangeable and easily fitted by the operator.

Computer Technology (CW), Eaton Road, Hemel Hempstead, Herts HP2 7LB. Tel: (0442) 3288.

Fixed-price data distribution package

ALVERONIC Computer Systems has announced its Upgradeable Cabler - a fixed-price data distribution package.

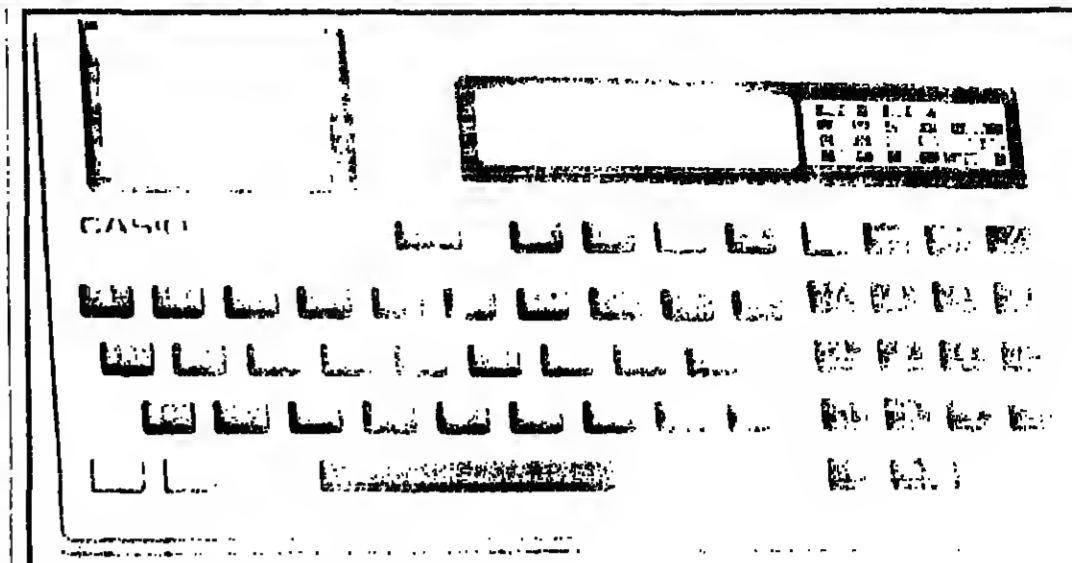
"Fast considerations have tended to limit the number and location of terminal points around any but the smallest office buildings," says Barry Smith, Alveronic technical products division director. "Staff often have to share terminals that are not conveniently located and, if people or functions have to move, re-cabling is inevitably expensive and disruptive. Adding new users to an existing system is especially costly, creating frustrations all round."

Instead, Alveronic offers to cable an entire building, either before occupation or after, at a fixed cost of £45 per terminal point. The only extras are the cost of an Alveronic-supplied "patch panel" cross-connecting each of the computer's communications ports with a chosen terminal outlet, and the standalone leads needed to link each terminal with an outlet point.

Alveronic can offer 24 or 48-port patch panels suitable for any computer in RS232 and IEEE 48 cable specification of up to eight wires under the fixed-price scheme. A variety of outlets can be selected, including wall-mounted fixed, wall-mounted jack points or flush-floor island mountings. Connections offered include quick release DIN to RS232 standard for instant user mobility.

"If a company can save only one VDU from its anticipated requirements by this approach, it will have paid for the patch panel and associated work," Smith says. "In most cases, we find that datapoint distribution actually saves money while improving the flexibility of terminal access throughout the firm."

Alveronic Computer Systems (CW), Alveronic House, Ryde Avenue, Hull, N. Humberside HU5 1QQ. Tel: (0482) 445461.



The Casio FX802P pocket computer with built-in printer.

Pocket computer's built-in printer

JOINING the FX700P/PB100 family of pocket computers, Casio FX802P is the first to have an integrated printer. It makes a complete hard copy data processing system in a compact unit, about the size of an average wallet.

At a recommended retail price of £99.95, it works out cheaper than one of the earlier "naked" machines with an add-on printer, yet it retains full compatibility with the existing FXA3 cassette interface, says Casio.

Programming language is Basic. Computing capacity includes simultaneous residence of up to ten separate programs, totalling 1,568 steps and 26 memories. Memory storage can be expanded at will in exchange for program steps, up to a maximum of 226 memories.

Printout, under direct or program control, is on 38mm wide paper. Use of a mosaic system for

both pointcut and liquid crystal display ensures good graphics for special symbols, says Casio. Keyboard layout has been further refined, with the conventional query keys in staggered rows and with an extended space bar, after the normal big computer style.

Casio Electronics Co. (CW), Unit 6, 1,000 North Circular Road, London NW2 7JD. Tel: 01-450 9131.

Head life of 30 million characters

A LOW-COST printer, the DDTSP83 from Data Design Techniques is an 80 column, serial, dot matrix system with a printing speed of 80 cps. It is designed to operate through software control directly from a microcomputer, office computer or similar device which has a printer port for Centronics or RS232 specifications.

Graphic character code set is also available with the capability of printing in bit image graphics. In addition, the DDTSP83 has considerable formatting capabilities with its own internal microprocessor system.

The DDTSP83 uses a cartridge ribbon, and this printer has a head life of approximately 30 million characters, after which the head is easily replaced.

The printer, priced at £325 (end-user), is available now. Data Design Techniques (CW), 68/70 Twain Road, Welwyn Garden City, Herts AL7 1BD. Tel: Welwyn Garden 34774.

British-built VDU on sale

COMPUTERWARE has introduced a British-built visual display unit that emulates the DEC VT100. Known as the TT102 Plus it has a 15 in. screen which is available in green, bronze or white.

The large screen with etched bonded faceplate, and a specially designed character set, makes it suitable for 132-column work with a minimum of operator strain, says Computerware.

The unit is housed in a new style compact casing which has built-in tilt and swivel facility. It uses a low profile precision keyboard which is ergonomically designed to the German DIN standards.

Many facilities are included as standard, including European character sets and a standard hard copy channel.

The VDU is manufactured by Tribest Technology in Milton Keynes, which has appointed Computerware as the UK selling agent. Computerware is looking for distributors and OEMs.

Computerware (CW), 55 Chapel Street, Thatcham RG13 4JS, Berkshire. Telephone: (0635) 68381.



The Gallid data holder - freeing computer users from mounds of paper.

Data holder will cut out those lost lines

A DATA holder which incorporates a mechanism as well balanced that the holder can be moved without the use of clamps, is the claim of Gallid.

The data holder has a cursor which can be moved by the user, easily eliminating the possibility of missing out lines which can happen through eyestrain.

Gallid says it has given great thought to the data holder to ensure that it can be easily adjusted and a special spring tension allows it to be positioned with documents without the need to clamp the mechanism.

It is available in A4 and A3 document sizes and comes in a wide range of colours.

Gallid (CW), 1 Bilton Road, Rugby, Warwickshire CV22 7AA. Tel: (0788) 74442.

Mannesmann Tally adds to its range of matrix printers

THE MT12X series is the latest addition to Mannesmann Tally's family of matrix printers. Comparing the MT123, MT125 and MT127, the series offers a compact, cost-effective solution for special multi-function printing applications at speeds of up to 160 cps.

The range is compatible with many microcomputer systems due to the industry-standard interfaces incorporated in all Mannesmann Tally's printers.

Each printer is easy to operate,

say the manufacturers, with simply-selected variables and features, including character pitch and style, tabulation, double-width characters and self-test facilities.

The MT12X series provides various divided paper-feed systems as well as manual and semi-automatic front feed facilities. Each printer is available with a variety of pinheads (J, D or L).

Mannesmann Tally (CW), Molly Millars Lane, Wokingham, Berks RG11 2QT. Tel: (0734) 788711.



THIS Pericom 7800 terminal upgraded to graphics, has the latest "extra" - a joystick to control the cursor movement around the screen.

The joystick, on the operator's right, is mounted in a separate housing designed to match the keyboard. Pericom Data Systems (CW), 5 Tamers Drive, Blakelands, Milton Keynes, Buckinghamshire MK14 5LJ. Tel: (0908) 614242.

Sintrom add-on for the LSI-11

AN add-on system for the DEC LSI-11, which supports both 22-bit and 18-bit addressing and converts this microcomputer system to offer the versatility and power of much more expensive DEC minicomputers, has been launched in the UK by Sintrom Electronics.

The Datarum M23 fully supports the 22-bit main memory addressing of the DEC LSI-11/23 computer which offers four mega-

bytes of main memory, but unlike the DEC LSI-11/23 it enables the user to take advantage of the wide range of powerful peripherals which run on systems using 18-bit controllers.

The key to the M23 System is Datarum's proprietary memory management Q-MAP, which emulates the memory management of the DEC KT24 and provides input/output mapping to support the wide range of existing peripheral

controllers using 18-bit bus, Q18. It is compatible with RSX11-M, RSX11-M Plus, RSTS, Unix and all other DEC operating systems which support the KT24.

The cost of the basic configuration in single quantities is £7,575 and each additional 1.0 Mbyte quad board is £2,222. Discounts are available for OEM quantities.

Sintrom Electronics (CW), 14 Arkwright Road, Reading, Berks RG2 0LS. Tel: (0734) 875464.

CONTACT XENIA WHITE—FOR ADVERTISING RATES TELEPHONE: 01-661 8671

reprints

If you are interested in a particular article/special feature or advertisement in this journal

Have a good look at our Reprint Service!

We offer an excellent, reasonably priced service working to your own specifications to produce a valuable and prestigious addition to your promotional material (minimum order 250 copies). Telephone Michael Rogers on 01-661 3036 or complete and return the form below.

To: Michael Rogers
Computer Weekly, Room 211A
Quadrant House, Seton, Sursey SM2 5AS

I am interested in _____ copies of article/advert, headed _____ featured in this journal on pages _____ issue dated _____

Please send me full details of your reprint service by return of post.

Name _____
Company _____
Address _____

Tel. No. _____

MACHINE DOWN?

Why worry about repair costs - Newbury Data now offer a standard charge - a "No Hidden Cost" Repair Service.

- ★ D9427H cartridge disc drive £650 + VAT
- ★ D9448 disc drive £850 + VAT
- ★ D9762 80 Mb disc drive 8K5 Series £1000 + VAT
- ★ D9766 300Mb disc drive MK7 Series £1000 + VAT
- ★ DRE 8000 series printer £175 + VAT
- ★ DRE 4000B (44B) disc drive £750 + VAT
- ★ DRE S30 disc drive £450 + VAT

Delivery 30 days - Warranty 90 days parts. Contract Maintenance available on request.

For further information Telephone: Newbury Data Recording, Jill Bartlett on Staines (0784) 62020 or Phil Smith, Manchester (061) 481 0134.

Newbury Data

A member of the DRI Group.

UNITED STATES DEPARTMENT OF JUSTICE

GREATER MANCHESTER COUNCIL

Tenders are invited for the supply and installation of a computerised recycling system. Tender documents which must be received not later than 4 p.m., Thursday, 30th June, 1993, are obtainable from County Treasurer, County Hall, Piccadilly Gardens, Manchester M60 3HR.

**SECONDHAND
EQUIPMENT?
SERVICES TO THE
COMPUTER
INDUSTRY?
COURSES?
PROPERTY?**

Let Computer Weekly help you to reach the right people!

For rates and details, phone me, Xenia White on 01-661 8671 and find out how easy it is to advertise in the Marketplace section.

**MICRO-COMPUTER
MAINTENANCE**

APPLE
IBM
SIRIUS
VICTOR

See us at
Apple '83
Stand
No. **56**

NATIONAL
ON-SITE
24-HR.
CONTRACTS

COMMERCIAL DATA SYSTEMS LTD.
Telephone: 0268-710292 (ask for Sales)

We give all our equipment and service the Gold Buckle treatment

We specialise in supplying
Nova 3 Memory · Eclipse
Memory · Nova 3 Triple
Option · 6020 Tape Subsystem
Dasher Displays and Printers · Micro
Nova Processors · DG Compatible Terminals,
Disc and Tape Systems, etc · 3rd Party
Maintenance · New and Reconditioned
Equipment for Second User—and lots more!

**Telephone or write to Stephen Page for your
Gold Buckle Treatment, today.**



BUCCANEER

**Buccaneer Systems Limited
Brunel Drive, Newark.
Notts NG24 2EG**

**Telephone 0836 707009
Telex 56426**

The adventurous service in computers

DEC and DATA GENERAL

Buy, Sell or Trade

SAMPLE OF STOCK

● S 140 Memory	● 5 - 5 Disk Drive	● DH11-AC
● C 350 CPU 2	● UIM-5 MUX	● MS11-JP
● 6050 VDU	● ALM-8	● POP8-F

Call **Alastair Doda**, 01 487 1985 or 01 487 8499

Thomas Business Systems, Ltd.

CSP
COMPUTER
SYSTEMS & PRODUCTS

Hardware Software Engineering
Bureau Services

Specialists in Dec/Prime & compatible peripherals

- CDC discs
- Dilog Controllers
- Mositek and PRIME
- Compatible Memory
- Kennedy Tape Drives
- Kennedy Disk Drives
- Emulex Controllers
- Data Products printers
- Printnrix printers
- Di-an ticket printers

Registered Instrument of Digital Equipment Corporation
Registered Implementor of Prime Computers

For Delivery Schedule Prices

For Price List

BOX NUMBER REPLIES SHOULD BE SENT TO:
BOX NO 1919
COMPUTER WEEKLY
QUADRANT HOUSE, THE QUADRANT
SUTTON, SURREY SM2 5AS

Multi-user micro computer system, 3 x Z80A, 192 KB ram, 10 MB Winchester & 400 KB floppy, 6 x serial I/F & 1 x parallel. Also 1 x Cifer 2805 VDU terminal. Less than 6 months' use.

Available now £3,260.

Tel: (0602) 303306
or (0602) 617182

matrix, ink jet and
deisy wheel.

Service, spares and
trade-in.

**PRECISION
PERIPHERALS LTD**
Unit 2
Homefarm
Industrial Estate
Yattendon
Nr Newbury, Berkshire
Tel: (0635) 201450

LOW COST REPAIRS
North Star, Apple,
Micro-Computer Syet
Floppy Disk Drives,
VT100, CIT-101, ADM, A
VC, Hazeltine, Televi
VDUs, LA34, Teletype
Texes, Epson, Ane
Diablo Printers and
more computer termi
Also provide maintena
and repair service on b
of other computer a
ment suppliers.

Telephone:

WE PAYCASH
for any obsolete or
redundant mainframe
systems. For an
immediate offer and
further details phone:
Adam Barker
01-587 1604/6
DIXONIAN LTD.

[illegible]

PCML

HAVE FOR SALE OR LEASE
3 X 4341 - MO2
available June, July, August
We require 434101.01
All peripherals bought and sold
Contact either Derek Boley or John Fuller

<h2 style="text-align: center;">NCR Computer</h2> <p>Complete NCR 8200 system, currently running and fully maintained, Littlehampton, Sussex, 128K memory support available.</p> <p>For full details please ring</p> <p style="text-align: center;">0252 617333</p>	<h2 style="text-align: center;">SALE DEC SYSTEMS</h2> <table border="0"> <tr> <td>11/23 256K 4 1/2 20MB Winchester Tape 8 1/2 Unit 14U Cabinet</td> <td style="text-align: right; vertical-align: bottom;">£7750</td> </tr> <tr> <td>11/23 256K 48 MB 8 Winchester 46-10 Dual Floppy Disc sub system</td> <td style="text-align: right; vertical-align: bottom;">£8850</td> </tr> <tr> <td>V123 256K 4 1/2 10MB IS + S</td> <td style="text-align: right; vertical-align: bottom;">£5500</td> </tr> <tr> <td>CDC Hawk 14U Cabinet</td> <td style="text-align: right; vertical-align: bottom;">£1500</td> </tr> <tr> <td>DEC VT125</td> <td style="text-align: right; vertical-align: bottom;">£495</td> </tr> </table> <p>Hardware Executive 10</p> <p>Call now for a full stock list - COK, DEC, LSI, Kennedy, Citech, etc.</p> <p style="text-align: center;">BARNESHEROUGE LIMITED</p> <p style="text-align: center;">Bollour House 300-308 High Road Ufford, Essex IG1 1UH</p> <p style="text-align: center;">Telephone: 01-514 0338</p>	11/23 256K 4 1/2 20MB Winchester Tape 8 1/2 Unit 14U Cabinet	£7750	11/23 256K 48 MB 8 Winchester 46-10 Dual Floppy Disc sub system	£8850	V123 256K 4 1/2 10MB IS + S	£5500	CDC Hawk 14U Cabinet	£1500	DEC VT125	£495
11/23 256K 4 1/2 20MB Winchester Tape 8 1/2 Unit 14U Cabinet	£7750										
11/23 256K 48 MB 8 Winchester 46-10 Dual Floppy Disc sub system	£8850										
V123 256K 4 1/2 10MB IS + S	£5500										
CDC Hawk 14U Cabinet	£1500										
DEC VT125	£495										

Get your terminals talking for under £500



Think of CLEARWAY as a telephone system for computers and office equipment - in a few minutes, you've got access and maintenance, all able to communicate with each other. There's no tie-up. Flexibility, you get from your system.

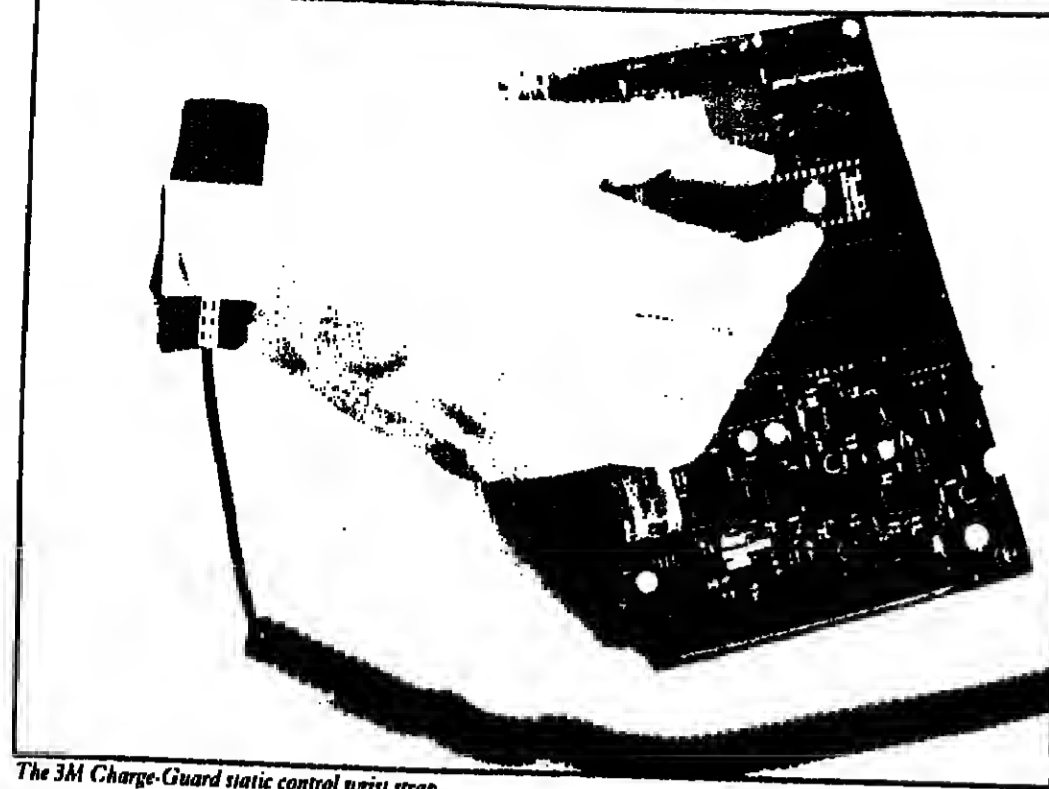
CLEARWAY Active Local Area Networking System was a standard kit that can be fully installed for under £500.

CLEARWAY can handle over 25 continuously active channels. And it can be installed by anyone, provided the hardware has a standard RS 232 interface.

Clearway
The best low cost local area networking device

For more details on Clearway, clip your business card to this advert, cut out and send to:

Real Time Developments Limited, Lynchford House, Lynchford Lane, Farnborough Hampshire GU14 6AA. Telephone: Farnborough (0252) 546213 Telex: B58693 FIE



The 3M Charge-Guard static control wrist strap.

'Comfortable' static control wrist strap

FOLLOWING a market survey to investigate the shortcomings of static protection techniques in electronics manufacturing, 3M has developed a static control wrist strap which offers comfort, convenience and efficiency.

It is particularly suitable for applications where user-acceptability is a major consideration, says 3M. Independent tests have shown that 20,000 volts or more can build up on the human body in the form of low-current static electricity, yet only 100 volts is sufficient to damage many semiconductors or integrated circuits. The 3M Charge-Guard wrist strap protects devices from such damage by grounding static carried by production personnel engaged in the assembly of components, or service engineers operating in the field.

It employs a combination of stainless steel fibres and elastic nylon, woven together to produce

a highly-conductive, corrosion-resistant band that is comfortable to wear, says 3M. The material is soft, lightweight and "breathes", while its elasticity ensures good contact is maintained with the wrist at all times.

Durability is also a feature. Performance is unaffected by perspiration or body oils and the use of stainless steel for all metal parts allows the strap to be washed regularly without deterioration.

An insulated outer surface reduces the chance of accidental injury and exhibits sufficiently high resistivity to prevent fusing to live contacts. Additional safety is provided by a one-megohm resistor moulded into the earthing lead connector.

The earthing lead is attached to the wrist band by means of a snap fastener of 3M design, which offers 360 degree contact but enables instant disconnection with-

out removing the band from the wrist. Its swivel action and strain relief control minimise cable stress.

Connection to a suitable earthing point is effected by a banana plug, or crocodile clip attachment supplied for field service engineers. If the wearer strays too far from the workstation, the band's natural elasticity reminds him that disconnection has occurred by delivering a gentle "snap" on the wrist.

The Charge-Guard wrist strap is available with either a coiled telephone-style cord extending to 5ft (Model 2066) or a standard straight 4ft lead (Model 2067). A choice of bands is also offered to accommodate variations in wrist size.

3M United Kingdom (CW), 3M House, PO Box 1, Bracknell, Berks RG12 1JU. Tel: Bracknell (0344) 58307.

Disc drive range extended

GOULD SEL has extended the range of disc drives on its Concept/32 series of 32-bit superminicomputers. It will now offer the Model 8137 80 Mbyte mini-cartridge removable disc drive and the Model 8147 160 Mbyte mini-Winchester disc drive.

The mini-cartridge is a random access disc drive featuring front-loading 9in diameter cartridge media which is removable as a sealed unit. This minimises the effects of particle contamination when the cartridge is removed from its drive.

Another feature of the 8137 is an actuator and spindle lock mechanism which takes effect when power is removed, making the disc drive suitable for applications which require periodic transportation.

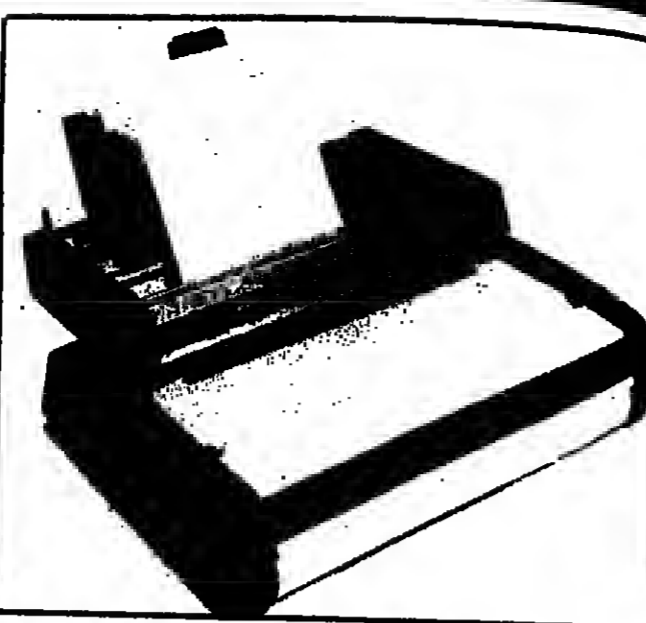
The Model 8137 consists of a data cartridge with 82 Mbytes of unformatted data storage capacity, spindle, direct coupled DC brushless drive motor with digital speed control, universal power supply and actuator. It optionally allows frequencies of 50 or 60 Hz.

The Model 8147 completes the range of disc drives, providing a middle storage capacity between the company's 80 and 300 Mbyte disc drives, and offers mid-range storage capacity for CAD/CAM application and in energy management and control.

It is a rack mounted, fixed media drive with 165 Mbytes of unformatted data storage capacity. The 8147 provides industry standard SMD compatibility and performance in a small package in which advanced electro-mechanical design results in low power consumption, says Gould.

The 8147 disc drive has a sealed disc module that contains the disc heads, rotary type actuator and air filter. The drive uses light-load, contact-type, start/stop heads and lubricated media for high reliability. The heads are returned to a landing zone out of the data area during spindle start and stop functions, reducing the possibility of media degradation in data areas.

Both disc drives use low power Schottky and ECL technology. Gould SEL Computer Systems (CW), Raftery House, 2-4 Sutton Court Road, Sutton, Surrey.



The GE dot matrix printer with automatic sheet feed.

Quick and quiet dot matrix printers

THE General Electric 3000 series of dot matrix printers, which are claimed to offer near letter quality with three different speed options and quiet operation, has been introduced by ISG Data Sales.

The 3000 series comprises six different standard and dual mode models, ranging in speed from 100 to 500 characters per second with pitches of 10, 12, 13.1 and 16.5.

With dual mode models, quality printing is provided at speeds of up to 200 cphs.

Costing from £1,700, all the models in the range combine DP and word processing capabilities, with a choice of 86 or 136 column designs plus 72x72 dot/inch graphics.

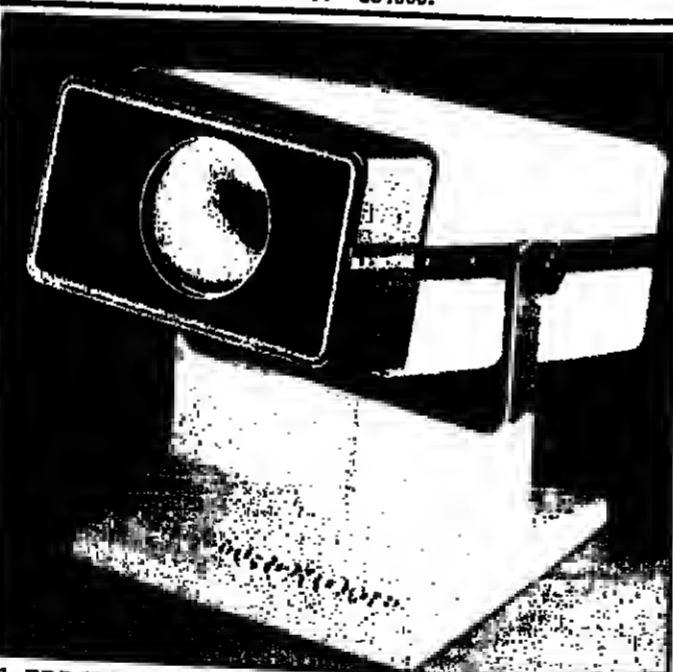
Designed for applications ranging from light duty cycle professional data printing to heavy duty,

high volume, data or word processing, the series all interface in the same way and are totally interchangeable.

On all models, printing is bi-directional and logic seeking. The printers have either nine or 18 needle printheads and feature on all the models include built-in tractors, a six-part form capability and a close-in tear-off bar to cut form waste.

Optional extras include an automatic sheetfeed, a Centronics parallel interface, a single document inserter and multi-colour printing.

ISG Data Sales (CW), Unit 5, Wellington Industrial Estate, Basingstoke Road, Spencers Wood, Reading, Berks RG7 1AW. Tel: Reading (0734) 884666.



The BDP 57 data projector.

Big screen displays

A DATA projection system announced by Reflex will display high resolution computer generated graphics on large screens. Known as the BDP 57, the projector accepts the composite video input signal available from most modern terminals or can be interfaced directly with most computers.

Designed for use in normal lighting the BDP 57 is suitable for training, sales and marketing presentations as well as software demonstrations to large groups, says Reflex.

It can be used with screens ranging in size from 1.2 metres to 3 metres (diagonal). Even with the largest displays, the projector's 20 MHz video bandwidth and precision optics ensure that complex data and graphics are presented with very high 600 line resolution. In addition, the projector's vertical and horizontal scan rates can be varied over a wide frequency range (45Hz to 80Hz and 1kHz to

25kHz respectively) to ensure full compatibility with all currently available computer systems.

The BDP 57 will produce sharp characters from computer outputs even with 132 characters per line, says Reflex. The projector has been introduced because ordinary projectors, designed for normal video applications, will suffer picture degradation on lines of text with as few as 40 characters.

The display is generated using a 100 lumen projection tube with a green P1 phosphor as standard. Other colours are available to special orders.

Although many different screen materials including flat and rear projection screens can be used, Reflex can also supply a 6ft diagonal, curved screen for viewing in higher ambient lighting conditions.

Reflex (CW) 44 Gallys Road, Windsor, Berks SL4 5RA. Tel: (075 35) 64327.

APPOINTMENTS

Computer Weekly
Classified Department
Quadrant House
The Quadrant
Sutton, Surrey SM2 6AS
Surrey
SM2 6AS
Direct: 01-661 8080
Consultancies: 01-661 8787
Telex: Comweek 882084 Sipsrs G

Direct client sales
TeleSales Manager
Shobhan Gajjar
Field Sales
Manager
Mike White
Consultancies Sales
Assistant manager
Julie Harnford-McNelly

Regional Offices
Birmingham/Bristol
Vic Sheret
021-356 4838
Manchester/Glasgow
Owen Kelly
061-872 8861
Production
Steve Lever
01-981 3104

General copy deadline
3.30 pm Monday prior to
Thursday publication
Top Jobs deadline
4 p.m. Friday prior to
Thursday publication
Colour deadline
4 p.m. Friday prior to
Thursday publication

Rates
£31 per s.c.c.
Quarter page
Half Page
Full Page

190mm x 125mm £1400
190mm x 286mm £2320
390mm x 125mm £2210
390mm x 168mm £2700
390mm x 295mm £4380

Bx n.p. £6 extra. Address back to e/o Computer Weekly, Classified Dept., Quadrant House, The Quadrant, Sutton, Surrey, SM2 6AS

Software Development Programmers

Central London

to £11,000

Our client, one of the leading computer based software houses in the UK, has specialist requirements for the design and development of business and scientific systems, and financial packages covering a wide range of financial and management systems.

In line with the company's growth, the post is open to recruitment to additional programmers.

Ideally you will have mini/micro programming experience in BASIC with a knowledge of accounting packages or PASCAL programming with exposure to the development of Financial Planning and Database systems.

If successful, you will have the scope to utilise your creative skills in the design and programming of first class quality products and work within a small, friendly

but professional environment. For further information and to apply only please call Knight on 01-491 4706 quoting Ref. YY130

Knight

Confidential Reply

Systems Analyst

West London

c.£11,500

Grand Metropolitan Information Services is the Computer Services subsidiary of the Grand Metropolitan Group. They are a large and progressive company providing information technology services for the various businesses in the group which include worldwide luxury hotels, brewing, wines, spirits, food and leisure companies.

As part of their development plans a Systems Analyst is required to undertake a variety of assignments on group systems. If you have at least three years experience and can demonstrate the capability to undertake a very interesting and demanding role then contact Knight on 01-491 4706 quoting reference RC312.

- * IBM Mainframe
- * Project Control & Costing
- * Commercial Systems
- * Customer Liaison
- * Staff Supervision
- * Cobol or PL1

GMIS

Grand Metropolitan Information Services

Analyst/Programmer

(Prime Info)
City

£10,000-£12,500 + benefits

Our client is a British Oil Exploration organisation with activities in three major areas - United Kingdom, S.E. Asia/Australia and North America. The London computer services division houses a Prime supporting 20 terminals and a range of technical and financial applications.

They currently require an Analyst/Programmer with a good educational background and sufficient experience to take responsibility for database and technical projects.

You will also have the opportunity to work on additional areas including systems administration, user liaison and other technical applications.

Ideally your experience will include some of the following skills:

- * INFO
- * Fortran
- * Database applications
- * Technical applications

Knight

Confidential Reply

Realtime Project Engineer (Image Processing Systems)

Bedfordshire

£12,000-£15,000

Our client is a leading manufacturer of image processing systems. They are a large and progressive company providing information technology services for the various businesses in the group which include worldwide luxury hotels, brewing, wines, spirits, food and leisure companies.

In line with the company's growth, the post is open to recruitment to additional engineers.

Ideally you will have mini/micro programming experience in BASIC with a knowledge of accounting packages or PASCAL programming with exposure to the development of Financial Planning and Database systems.

If successful, you will have the scope to utilise your creative skills in the design and programming of first class quality products and work within a small, friendly

* Degree in Computer Science or Electronics
* Background in RDT or Electronic or Mechanical Engineering

There are excellent prospects for a career development within the image processing industry.

For further information and to apply only please call Knight on 01-491 4706 quoting Ref. YY124

B.O.X

IBM Series 1 Specialist

West London

c.£14,000

- * IBM Series 1
- * RPS
- * Assembler

Our client is an affiliate of a well known multinational group of companies. Their data processing centre utilises state of the art computing facilities ranging from micro through a variety of mini computer systems to powerful mainframes.

You will be engaged in a specialist role to generate an IBM Series 1 network using RPS Assembler linking portable terminals and other devices to an IBM 3081. The position offers an exciting opportunity to the successful candidate with the scope to develop further skills in a multi-machine environment.

Knight

Confidential Reply

Analyst/Programmer

Opportunity to move onto Wang
Central London

to £11,000 + Bonus

Our client is a leading management consultancy that utilises in-house data processing facilities to support both assignments and their own business administration. A development plan is in the process of implementation and this will include the integration of data and word processing into a network of several WANG computers. Our client requires an additional Analyst/Programmer to join a small, active and professional systems development group.

This opportunity will suit an adaptable person with a minimum of four years application experience. Ideally this will include BASIC or COBOL in a mini computer environment although training will be given if applicable. The successful candidate can expect a benefits package which will include a bonus and also BUPA and luncheon vouchers etc.

For further information and an early interview please contact Knight on 01-491 4706 quoting Ref. YY131.

Knight

Confidential Reply

16-bit colour packages for desk-top micro

ZENITH Data Systems has introduced 16-bit colour Wordstar and SuperCalc packages to the range of software available for its Z100 desk-top microcomputer.

Colour SuperCalc shows negative amounts in the body text in red, protected entries in yellow and unprotected entries in white.

Operating under ZDOS, the 16-bit SuperCalc enables accountants, business owners, planners and engineers to answer the "What if?" and "Now what?" questions.

With a dual 8/16 processing capability, the Z100 operates on six colours.

Zenith Data Systems (CW), Bristol Road, Gloucester, GL2 6EE. Tel: 0452 29451.

5Mbytes on 5 1/4-inch disc

THB Micro-Magnum 5, manufactured by DMA Systems and available in Europe through Advanced Peripheral Products, is a 5 1/4-inch Winchester disc drive with a 6.75 Mbytes (5 Mbytes formatted) storage capacity in a removable disc cartridge.

The drive employs a number of proven technologies that have been integrated for the first time, providing capabilities identical to those used in the Magnum 5/5 fixed/exchangeable drive unit.

Standard features include 43 programmable functions and windowing. Shandell Systems (CW), 12 High Street, Chalfont St Giles, Bucks. Tel: (02407) 2027.

Building a workstation

THE Conti terminal table is the cornerstone of Martels's electronic office system of workstations. The keyboard section is adjustable in height and the screen section is adjustable in height and rake.

Total workstations can be built up using a range of different sized table tops, each of which can be linked to the others at varying heights, using simple connectors. The co-ordinating print-out table is built to reduce vibration and can cope with paper feed from top, side or bottom.

Martels Contract Interiors (CW), 210 High Holborn, London. Tel: 01-831 8771.

Graphics for Concept

VECTOR graphics options compatible with Tektronix 4010/4013 graphics have been added to the Concept range of interactive display terminals.

The Concept GVT graphics display terminal also has the capability of producing graphics hard copy via the connection of a printer to the terminal's printer port.

Concept combines Anal X3.64 functions, DEC software

compatibility and switchable 80/132 column format with an extensive series of applications-oriented features that provide advanced text editing and data entry/retrieval capabilities.

Standard features include 43 programmable functions and windowing.

Shandell Systems (CW), 12 High Street, Chalfont St Giles, Bucks. Tel: (02407) 2027.

Knight

Knight Computer Services Limited

(Recruitment Division)
14 Old Park Lane, London W1Y 4NL
A member of the Computing Services Association
(Licensed as an Employment Agency)

01-491 4706

24 Hours

HUNTERSKILL
The Hunter Skill Group

For more information about advertising in this composite feature, contact Neil Williams on 01-491 4706.

DALROTH

KUWAIT **Alghanim**
INDUSTRIES**£20,000-£25,000 Tax Free****plus Married Status plus Excellent Benefits**

The MANAGEMENT INFORMATION SERVICES GROUP of this major Middle East Company, trading on a wide basis are looking for two CAREER PROFESSIONALS to take their Data Processing Function into the 1990's.

KUWAIT offers one of the most progressive and liberal environments in the Middle East where the whole family can enjoy a high standard of living, with schooling to 'A' level standard, superb sporting and social facilities, excellent accommodation and working conditions and full medical and life and disability insurance cover.

ALGHANIM INDUSTRIES have a progressive policy of development both for their equipment and staff, with a positive policy of promotion from within; however to implement their immediate plans they currently require to recruit externally:

TECHNICAL SERVICES MANAGER

who will have a minimum of 10 years' experience and be thoroughly familiar with the software range on the installation described below.

The installation is a 2 MB IBM 4331 running under DOS/VSE POWER/VSE, using CICS/DLI on-line to 3270 TERMINALS and 5260 P.O.S. TERMINALS (scheduled for Sept.). Other software used includes VOLLIE, LIBRARIAN, CA-EARL, CA-SORT, JASPER etc. Also to be supported are CMC MICRODATA and a range of MICROS (including the IBM P.C.) to be introduced for Distributed Processing and Office Automation Systems.

Screening and initial interviews will be held in London early/mid June and selected applicants and wives will have the opportunity to visit the Group's Headquarters in Kuwait.

For further details please contact Peter Henrick on 01-493 2937 days, or 01-390 1640 evenings/weekends quoting Ref. No. 9975.

DALROTH & PARTNERS LTD, 4 HALF MOON STREET, LONDON W1

New European R&D Centre**Opportunities in**

- *SOFTWARE *DOCUMENTATION
- *HARDWARE *MANAGEMENT

nt northern telecom

Have you seen our special Recruitment Feature announcing that Northern Telecom Data Systems is establishing a New Product R&D Centre in South Hertfordshire?

IF YOU HAVEN'T CALL ALAN CARNELL
OR ANDREW CARTER ON 01 936 0671

university college of swansea**Department of Electrical and Electronic Engineering**

Applications (male or female) are invited for the following posts:

Fixed-Term Lecturer

with research interests in Computer-Aided Design of devices, circuits or systems. Salary will be on the lower half of the scale, £6,375-£13,505 per annum.

Manager of the Microprocessor Centre

to be responsible for operation of the Centre and expansion of industrial activities. Salary on the scale, £10,670-£13,505 per annum.

Fixed-Term Research Demonstrator

With interests in microprocessors and their applications. Salary on a scale up to £7,225 per annum.

Senior Research Assistants

With first or higher degrees to work on research projects concerned with semi-conductor device modelling and data conversion for digital audio applications. Salaries will be up to £7,655 per annum.

Research Students

With good first degrees for work in all areas of Electrical and Electronic Engineering and Applied Computer Science. Standard SERC grants, in many cases, with substantial supplementation through CASE and CTA Awards.

Further particulars and application forms (two copies) may be obtained from: The Personnel Office, University College of Swansea, Singleton Park, Swansea SA2 8PP, to which office they should be returned by Friday, June 24th, 1983.

UNIVERSITY OF EXETER Department of Electrical Engineering Science**LECTURER**

Applications are invited for the above post (salary scale £6,375-£12,065) for appointments from 1st October, 1983, to support teaching in the M.Sc. course in Telecommunications. The course, which runs alongside other graduate courses in the telecommunications area, has recently been recognised by the SERC for degree-level status. Candidates should have an honours degree in electronics or a related subject and have experience in the design and development of telecommunications systems. The post holder will be responsible for the teaching and supervision of students on the course and will also be expected to contribute to the department's research and to undertake research in the field of telecommunications. Further particulars may be obtained from the Registrar (AG781000), University of Exeter, Wyndham Hall, Cornhill, Exeter EX1 1RN, to whom applications should be submitted by 18 June, 1983.

In 6 months you'll be glad you joined the Automobile Association



In 2 years you'll be delighted

No, we're not talking about the future security of your motoring trips, we're talking about the marvellous opportunities that exist within one of the world's most dynamic ICL installations. The Automobile Association can justify the cliché 'State of the Art Technology' when enthusing about its challenging current and future development plans. The majority of new positions available are located in The Automobile Association's headquarters, Fanum House, Basingstoke, Hampshire. Fanum House is a modern office building offering first class working and social conditions.

Did you know that the Automobile Association has over five and a half million members? In addition to its renowned services for motorists, it can boast involvement in a variety of other activities: Comprehensive Insurance Broking, even including a Mortgage Protection Scheme; Travel - it has one of the UK's leading ABTA travel agency chains with 50 outlets; Overseas Travel Protection - it even has its own air ambulances for the repatriation of members taken ill; it is one of the UK's leading Cartographers: it is high in the list of leading book publishers. So you see there's a lot more to the Automobile Association than you think.

The Automobile Association is very interested in talking to top level computer professionals with the relevant background in the following areas:

- * Programming * Systems Programming
- * Transaction Processing * Networking
- * Communications * Technical Support
- * Database Systems * Office Automation
- * Project Management

The A.A. is now embarking on a long-term strategy of linking its ICL Dual 2966 mainframes, DRS 20's, its word processors and an extensive communications facility into an integrated information processing network, using the latest database, IPA and decision support software. A feasibility study will be testing information retrieval techniques using CAIFS-ISP and data display with Viewdata. There is no question that, with its absolute commitment to computing development, The Automobile Association will be involved with all the latest technology.

Last but not most certainly not least, The Automobile Association offers successful applicants a comprehensive relocation package which this recruitment consultancy believes is second to none. When you meet the technical staff at the A.A. and discuss their future plans you'll understand our statement at the beginning that in 6 months you'll be glad you joined and in 2 years you'll be delighted. For more information please ring Janet Chivers or Sandra Hersh on the office numbers but if this is not convenient they will both be pleased to talk to you outside working hours. Janet can be found on 01-785 7615 and Sandra can be contacted on 01-458 6988. Alternatively post the coupon today - no stamp needed.



Please send me further details

Name: _____

Experience: _____

Address: _____

Home Tel: _____ Work Tel: _____

WARWICK WOODWARD

A SPAN GROUP COMPANY

43-44 GREAT WINDMILL STREET, LONDON W1V 7PA
TELEPHONE 01-734 7394 24 HOUR ANSWERPHONE

SYSTEMS ANALYST ANALYST/PROGRAMMER

FLOTILLA SHOES LIMITED - a subsidiary of C.S.J. Clark Limited operating shoe shops trading as Peter Lord, James Baker and Bayne & Duckett. We need a lively Systems Analyst and an Analyst/Programmer to help us develop new retail systems covering stock control, distribution and accounting. Previous systems analysis experience is essential and knowledge of retailing, data base and on-line systems would be an advantage. We currently operate two Univac 1100 computers with on-line terminals. Remuneration package includes non-contributory pension scheme, profit sharing scheme, BUPA and staff discounts.

Please apply for application forms to Mrs Fiona Wood, Personnel Officer, Peter Lord Ltd., P.O. Box 3, Street, Somerset. Tel: 0458 42331 ext. 205.

A DIVISION OF
C.S.J. Clark Limited

**THE ROGER PARKER ORGANISATION**

ANALYSTS (8)	CONTRACTS	Top Rates	June 83
IBM MVS SYSTEM Progs (2)	Banking exp. essential	£880 +	July 83
IBM Operators (2)	Six months renewable	£A.T.E.	June 83
	MVS JES II, IMS, ACFTAM		
	PERMANENTS		
Anal/Progs Burroughs, Cobol, Accounts		£10,000	
Programmers IBM, DOS/VSE, COBOL, CICS		£7,000+	
Anal/Progs ICL, DME, COBOL, Commercial		£12-£14,500	
Programmers Intel, CP/M88, Graphics Development		£10,000	
Operator IBM 4341, MVS/JES II, 6 months Exp		£8,500 Incl.	
Anal/Prog IBM System 38, RPG III, Midas, C.I.		£14,000	
Systems, degree		£20,000++	
Prog/Designer PDP 11/70 Real Time, RSX-11M Macro II		£11,000	
Other permanent/contract vacancies on file			
Interested? Then telephone Clive Chatkin on 01-588 8184 or write to him at:			
4 LONDON WALL BUILDINGS, BLOMFIELD STREET, LONDON EC2M 5NT.			

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

ENGINEERS

min £12k Package + 2 l. car

Our client has established the highest reputation for the manufacture of increased performance cost reducing peripherals. Fourteen years' commitment to R+D has maintained their position as an innovative market leader. Now, in addition to optical disc technology, the release of a processor is imminent thus offering total systems to the market place.

Significant growth results in requirements for several field engineers in London and Home Counties. Candidates will possess three years' experience maintaining mini or mainframe systems and/or peripherals and substantial customer skills. This is a career opportunity offering an excellent salary and benefits package, on-going training and prospects towards support and management.

LONDON and HOME COUNTIES

For an informal discussion ring Chris Bond or Phil Jaisce on 01-637 9611

Suite 201/6, Albany House, 324 Regent Street, London W1R 5AA. 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

NAVAL AND POLICE COMMAND AND CONTROL

High availability systems

Consultants
Project Managers
Systems
Programmers

£10,000 to
£18,000

leasco
SOFTWARE LIMITED

Leasco Software Limited is one of the leading Computer Systems Companies in the successful implementation of high-availability Command and Control Systems. We currently require senior staff to join our expanding Police and Emergency Services Division and our Defence Division, to work on projects within these areas. We are seeking experienced Systems Programmers with an interest in Data Communications and Local Area Networks and with:

- at least 4 years systems programming experience
- real-time operating systems experience
- Assembly and COBOL experience
- a knowledge of Ferranti Argus would be beneficial

We are also seeking a number of Senior Consultants and Project Managers with experience of pre-sales activity and customer negotiations, through implementation to final acceptance. Applicants should have:

- at least 8 years experience
- Project leadership/management experience
- real-time system experience
- experience of working within fixed price contracts

These are permanent positions and are offered with a very attractive salary/benefits package, including profit sharing scheme, free lunches and a subsidised Pension and Permanent Health Scheme.

Please write, or telephone for an application form to: Mrs. P. M. Mole, Personnel Officer, Leasco Software Limited, Reliance House, 150/1-2 Bath Road, Maidenhead, Berkshire SL6 4LD. Telephone: Maidenhead (0628) 23391.

TOP JOBS

DATA BASE CONTROLLER

TO £16,000

YOU

Practical experience from implementing at least one significant DB project and of IMS are essential. You should be confident that your technical, managerial and people skills will enable you to obtain the most effective use of resources.

THE JOB

This is a new and senior position to lead this key function for coordinating, applying and expanding the use of database technology. The first of a series of large DB projects is about to be developed for a major operating company.

US

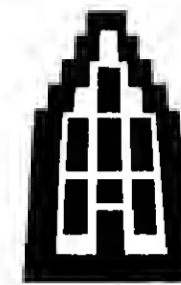
Granada Computer Services is a member of an expanding £460 m British Group with a proven international track record in the leisure and communications industry. Our sustained heavy investment in modern technology includes IBM/Amdehl mainframes, Series 1, System 34, micros, POS networks, videotex and communications.

We offer competitive salaries and regular reviews based on merit, full relocation to Bedford, 4/5 weeks holiday, flexitime, and other large company benefits.

For an informal discussion please phone Bob Tyrrell on Bedford (0234) 55233 daytime or 02806 322 evenings/weekends. Alternatively send brief career details to me at Granada Computer Services, PO Box 31, Amptill Road, Bedford MK42 9QQ.

GRANADA
Computer Services

Europe's leading
microsoftware company



holland automation

is looking for someone to strengthen the management team in the U.K.

The successful applicant will have sales and marketing expertise at a senior level within the software industry, and will have had experience in software as a programmer/systems analyst.

The position offered is available to a suitable candidate showing the drive and ambition necessary to take the applicant to a very senior position within the international organisation.

If you feel that you qualify for this attractive position, apply to:

Tom van der Loo, Chairman,
Holland Automation International (UK) Ltd.,
459 Bath Road, Slough SL1 6AA.

holland automation

DYNATECH NOLTON
require

DATA COMMUNICATIONS TECHNICAL SALES EXECUTIVES

Dynatech Nolton are expanding their UK salesforce and require two additional sales persons to cover southern England territories.

The Executives will be expected to sell a wide range of products including X25 Pads, X25 Switches, Network Control, Protocol Monitors/Simulators, Statistical Multiplexers and Modems.

The ideal candidate will be aged between 25-35 with a degree (or equivalent) in Electronics or Electrical Engineering and preferably some experience in the Communications or Computer Industry. Previous sales experience is not essential. Product training will be provided.

An excellent basic salary is offered plus commission and a company car with on-quota earnings in the region of £18,000 to £18,000.

Please apply in first instance to: Mrs. J. Gilling, Personnel Officer
DYNATECH NOLTON
Fieldings Road, Cheshunt, Herts EN8 9TL
Telephone: 0992 33855

A Dynatech Company

BANKING INSURANCE AND FINANCE UNION DATA PROCESSING MANAGER

£12,000 P.A.

An ideal opportunity exists for a person with suitable experience to assume responsibility for an ICL ME28 installation.

A sophisticated on-line membership system is in operation and the successful candidate will assume responsibility for the management of computer operations, liaising with various user departments and designing and developing future systems.

The successful applicant must be able to demonstrate the ability to manage a computer operations environment and should have systems design and programming experience, preferably on ICL equipment. Additionally experience of on-line systems is a requirement. Applications giving full details of age, qualifications and career state should be addressed to:

Administration Officer
BANKING INSURANCE AND FINANCE UNION
Sheffield House, 17 Hillside, Wimblesdon SW19 4NL
Closing date for receipt of applications is June 6th, 1983.

DE HAVILLAND COLLEGE

The Campus, Welwyn Garden City, Herts

DEPARTMENT OF COMPUTER STUDIES

(Based at Elstree Way, Borehamwood)

LECTURER II

required with experience of commercial data processing preferably in micro and/or mini computers. Applicants with lecturing experience and teacher training, with preferably a knowledge of two of the programming languages, BASIC, PASCAL or COBOL.

BOROUGH OF BARROW-IN-FURNESS
Borough Treasurer's Department

SENIOR SYSTEMS ANALYST/PROGRAMMER

AP4/5 £8,873-£8,325

Applications are invited for the post of Senior Systems Analyst/Programmer in the Computer Section of the Borough Treasurer's Department. This new post has arisen due to an increase in the Council's computing activities. The post will rank second to the Computer Manager in a section of nine persons. The Council operates a Honeywell Level 64 Computer, disc-based system with on-line data entry and cash receipting terminals. This equipment has now been in use for twelve months and conversion of the existing system is almost complete.

Applicants should have at least four years' experience in systems analysis and programming. Experience of Cobol programming, Honeywell equipment and Local Government Procedures will be an advantage. Starting salary will be commensurate with experience and qualifications.

Application forms are available from the Personnel and Management Services Office, Town Hall, Duke Street, Barrow-in-Furness, or telephone (0229) 25500, Ext. 218. Closing date: Friday, June 10th, 1983.

Town Hall Barrow-in-Furness
D. G. B. Lyon
Town Clerk and
Chief Executive
(3744)

UNIVERSITY COLLEGE LONDON

Computer Centre

SYSTEM PROGRAMMER

We are looking for a system programmer to join a team writing software for a service based on linked GEC 4180 computers, providing predominantly keyboard access to staff and students in the College and University. The Centre is involved with enhancing both the local service and its associated networking facilities and is seeking a programmer with an interest in operating system software, telecommunications or compiler maintenance. A relevant degree or equivalent professional qualification or experience is required. Salaries will be paid on academic related scales £2660 to £3770 or £3770 to £11105 plus a London Allowance of £1188, according to previous experience and qualifications. Applications (no special forms) including full cv. and the names of two referees to computer manager, University College London, Gower Street, London WC1E 6BT, by 31 May 1983. Further information can be obtained from the above address or by telephoning 01-386 8721.

INTERNATIONAL BANKING SYSTEMS

New York Up to \$45,000

Our client is one of the leading suppliers of computer systems and software to international banks throughout the world. The Group has a turnover exceeding £20 million and is a British subsidiary of one of America's largest international computer and financial systems organisations.

Due to a planned expansion programme overseas, there are a limited number of vacancies for high quality computer professionals to complement the existing team in the NEW YORK area.

You will assist with the introduction and development of new and existing banking and funds transfer systems involving client management and user training. This requires design and programming skills of a high standard, gained preferably with international banking applications. A knowledge of VAX hardware and operating systems would be a definite advantage. You must be appropriately qualified, self-motivated and have the personality to communicate effectively, most especially, with clients at senior management level.

These are key positions offering exceptional opportunities for the future. Salary is very attractive and excellent benefits package includes health, life and dental insurance, your Visa, travel and accommodation arrangements will be made for you. Preferred age 25-35.

We are advising the company on these appointments and applicants, male or female, are requested to write in strict confidence, enclosing a covering ref. 230 to Douglas Atkins.

AMC
Selection
Management and
Recruitment Consultants
15 Borough High Street
London SE1 9SH
Tel: 01-403 0924

FOR CLASSIFIED
ADVERTISING USE
DIRECT LINE
RECRUITMENT CONSULTANCIES
(01) 661 8787
DIRECT ADVERTISERS
(01) 661 8080

ARE YOU IN DEMAND?

We think you are!

If you have experience in the following areas

NORTH

VAX VMS Systems Programmers
SEL 32 FORTRAN Simulation Programmers Designers
PDP11 RSX11 CORAL 66 Programmers
PDP11 RT11 MACRO 11 Programmers
ARGUS 700 CORAL 66 Programmers Designers
INTEL 8086 PASCAL Programmers
Z80 ASSM - H L Language Programmers
M68000 - C Analyst Programmers
X25 X29 ETHERNET Comms Programmers
IBM GEC BCPL Analyst Programmers
IBM CICS DB 1 DOS VSE Programmers

MIDLANDS/SOUTH

RSX11M MACRO 11 Programmers
VAX BASIC programmers
M6805 9 Programmers
VAX INTEL 8086 CORAL 66 Programmers
VAX VMS RTL 2 Programmers
PDP11 RSX11M RTL 2 Programmers
VAX MACRO 32 Programmers
MVS Systems Programmers
IMS DB DC ADF COBOL Programmers
ICL 2900 IDMS COBOL Programmers

We can offer the best rates for the best people!

REAL-TIME CONSULTANTS LIMITED

Contact TONY or SUE in Leeds:
Real Time Consultants (North) Ltd.,
51a St. Pauls Street, Leeds LS1 2TE
Telephone: 0532 431522

Contact GEOFF or JANET in Birmingham:
Real Time Consultants Ltd.,
Monaco House, Bristol Street, Birmingham B5 7AS
Telephone: 021-622 6181



More than meets the eye...

DATABASE SPECIALIST

to £10,500

Most people know us as the security firm that cares. And we do.

However, did you also know that we own the largest Ford truck franchise in Britain, an executive jet, a hotel group and even an industrial cleaning service amongst our diverse interests?

These services inter-relate to form an expanding and highly successful group with an annual turnover in excess of £237 million worldwide.

Data processing will continue to make a significant contribution to our success, whether it be in the development of systems or national and international telecommunications networks.

We are now seeking a database administrator/programmer to join the database team. We have a ICL 2900, running under VME, using IDMS to support management and financial systems and DBS 20% to provide a nationwide communications network.

It is therefore important that you will have gained at least 2 years COBOL programming experience in a similar environment using IDMS with DDS being an added advantage.

In undertaking the programming aspect of the position, your responsibilities will also include ensuring the overall effectiveness of the database in meeting both the users' and technical group's requirements.

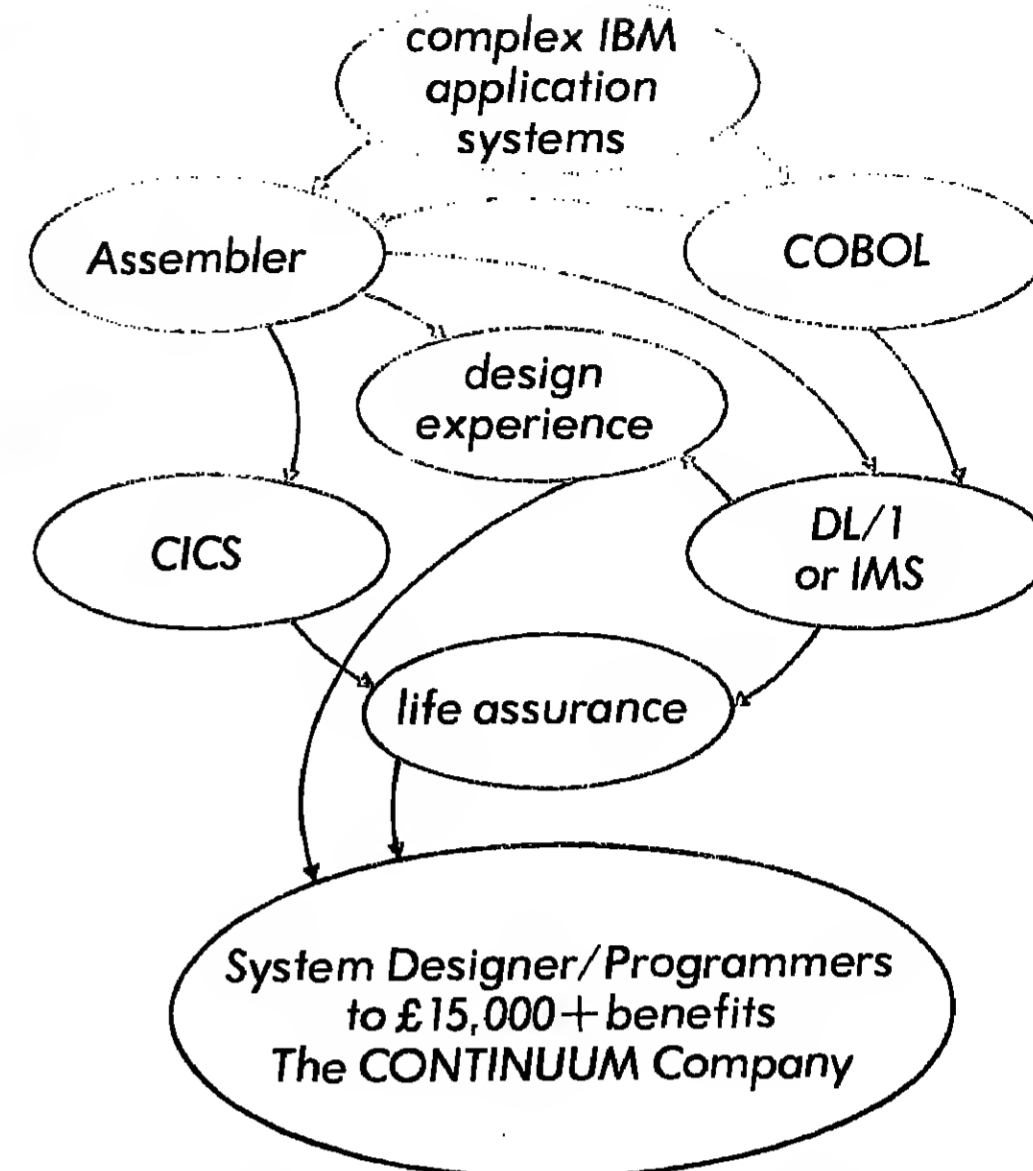
If you are looking to join a small team with projects offering variety, challenge and scope for personal development and believe that you match our requirements then we would like to hear from you.

In the first instance either ring me, Roy Bell, on 01-595 1289 or send me your C.V. with a brief covering letter outlining your suitability for the position. In return, we will send you further information about ourselves and this position.

SECURICOR

583 Fulham Road, London SW6 5UA

13771



The CONTINUUM Company is the largest application software and services organisation in the world devoted exclusively to serving the life assurance industry. TCC is committed to technological innovation, to early support for new insurance products and to a full range of education, installation, programming and consultancy services.

At its head office in Texas, USA, there are approximately 400 professional staff; the U.K. subsidiary, established just over a year ago, is proving so successful that we need to enhance our current 30 employees by additional self-motivated technical people.

Initially you will work in our development division, utilising your current skills whilst learning about the CONTINUUM systems and methodologies; subsequently there are opportunities to progress your career in a variety of directions — new technical skills, project management, education, technical support, special projects, and even marketing!

As well as an excellent basic salary, there are many additional benefits including six-monthly reviews, free life assurance, free private medical scheme, non-contributory pension scheme, relocation package, opportunity for travel and to work in a highly motivated, multidisciplinary environment.

To apply for these challenging positions or for further information, please call our Recruiting Consultant, Louise Romain on 01-407 2531, or write to her at:

The CONTINUUM Company, 77-83 High Street, New Malden, Surrey.

Louise Romain

01-407 2531

Bluebird Software Ltd.
150 Buckingham Palace Rd, London SW1W 9TR Tel: 01-730 8465/8

*You've heard a lot about us
You will hear a lot more*

We supply to the industry specialist support on IBM S/34, S/38 and Series 1.

As a young and rapidly developing company we are able to offer to a number of dedicated people the chance to participate in the company's growth.

We would like to hear from Systems 34, 38 and Series 1 people, at any level, who wish to take part in what promises to be an interesting and challenging future.

We offer good salaries, possible company participation and, above all, the opportunity to grow along with us.

Telephone Barry Whitesman or Clarry Garrow on 01-730 9465 or send a brief résumé

As a direct result of progressive success promoting sound and rapid growth of their PROGRAMMABLE CONTROL SYSTEMS DIVISION our client is seeking a high calibre:

SOFTWARE ENGINEER

N. Surrey

£28,500

Ideally you will be aged 23-30 with a Degree in either Instrumentation and Control, Maths, Computer Science or possibly another Engineering based science with experience in a process control/industrial environment involving small machines (16 Bit and Basic).

You will join a young, self-motivated team and can expect to be totally involved in all aspects of the project including customer liaison, therefore a current driving licence would be a distinct advantage.

The rewards, besides offering maximum job satisfaction and career prospects include an above average, negotiable starting salary, Pension/Life Insurance.

For further details regarding this appointment telephone Mr. P. I. Dungey M.B.I.M., M.I.L.M. on:

CRAWLEY (0293) 643431
(9am-6pm)

or write enclosing C.V. to:

ATA ENGINEERING RECRUITMENT

34 The Boulevard, Crawley, Sussex
(Out of hours answering service)

13816

ata

**NEWCASTLE UPON TYNE
POLYTECHNIC**
Computer Unit
**COMPUTING
OFFICER
(AP2/3)**
Ref No. APC 1553

required to join the Programming Advisory Section of the Computer Unit. Duties include software development and use support. Candidates will also be expected to perform system operation and maintenance on the Polytechnic Computers. **AP2/3 Salary and Conditions: AP2/3 £25,000 per annum.** For further details and application forms please call our 24-hour telephone answering service (023 221126) or write enclosing a stamped addressed envelope addressed to Mrs Rosemary Scott, Admissions Assistant (Polytechnic), 1000 Building, Eldon Place, Newcastle upon Tyne NE1 8BT, to whom completed forms should be returned meeting the appointment deadline of 9 June 1983.

J.C.C. B.V.

Scientific & Technical Software Specialists are seeking

SCIENTIFIC TECHNICAL PROGRAMMERS

for contract assignments or permanent employment in the Netherlands. Our projects require a knowledge of at least one of the following:

FORTRAN
UNIX, C
DEC, HP, IBM

Previous experience in the petroleum industry would be an advantage.

Please write giving full career history to: Mrs. H. van Heertum, J.C.C. B.V., Nassaulaan 15, 2614 JT The Hague, Netherlands.

Seismic Programmers based Central London

We have one of the most extensive and rapidly expanding international oil and gas exploration programmes. As a result we can offer a stimulating work environment — technical challenge — the chance to work on worldwide development projects — and excellent career prospects.

In order to expand the facilities of our seismic signal processing and interpretation systems, we need additional geophysical programmers. Successful applicants will initially be developing processing software, working with a team which includes research and signal processing geophysicists.

Our hardware configuration is based on DEC VAX11/780 computers. Programming will be mainly in Fortran, but time-critical routines may be written in array processor micro-code.

Applicants should have a good honours degree in Applied Mathematics, Computer Science, or a related subject and of at least two years' programming experience. Whilst we are particularly keen to hear from programmers with experience in signal processing, those with a knowledge of other geophysical applications are encouraged to apply.

We offer competitive salaries and an excellent range of fringe benefits including non-contributory pension scheme and generous relocation expenses, where applicable.

Please write with full details of qualifications and experience, quoting reference number FY.82, to: Mrs. Christine MacCorrick, Recruitment and Placement Branch, The British Petroleum Company p.l.c., Britonnic House, Moor Lane, London EC2Y 9BU.

13784

BP BP Exploration Limited

**HUTTON EXECUTIVE SELECTION LTD.
31 PALACE STREET
LONDON SW1E 5HW
TELEPHONE: 01-630 0434 (24 HOURS)**

CONTACT BOB BOWER, ADVISING DIRECTOR, AND OPEN THE DOOR TO A NEW AND REWARDING SALES CAREER. Ref: CW2605

Hutton

SPECIALIST RECRUITMENT CONSULTANTS

Please contact: TANGENT COMPUTER SERVICES LTD.
102/106 South Street
Romford
Essex RM1 1RX
Tel: Romford (0700) 764201

CIRRUS COMPUTERS LTD.
29/30 High Street, Farnham, Hampshire PO18 7AD
Telephone: 0329 295424

Either complete and return the coupon to **Bob Gill, Hambro Life Assurance plc, Hambro Life Centre, Station Road, Swindon, Wiltshire SN1 1EL.** Or telephone Swindon **(0793) 46700** (24 hour answer-phone).



HAMBRO LIFE
Security with a future

your appointments register

Programmers

NCR/IBM COBOL Insurance	to £15K London/H. Counties/Essex
COBOL/PLI US CICS/IMS Communications	to £13K Leicestershire/Midlands/Manchester
ICL/ON TIME EXP CORDI	to £12K Leicestershire
HONEYWELL Systems/Programs	to £12K Leicestershire
DATA GENERAL ECLIPSE Cobol	to £11K Leicestershire
IBM/RPG2 Financial/Insurance	to £12K Hertfordshire
IBM Systems/Programs	to £16K Essex
BASIC Mini Computers	to £11K London
IBM/UNIVAC COBOL On-line/Databases	to £12K Surrey
NCR 8200 Financial	to £14K SW LONDON

Systems Analysts

IBM/ICL Stock Control/Community Control	to £12K London
CAD/CAM Real time - Modelling	to £16K Men/Essex/South West
IBM/BURROUGHS Commercial/Accountancy	to £15K London/Surrey/Manchester
IBM SYSTEM 34/38 Mapical/Rpg	to £13K Sussex
ICL/ME29 Commercial Design	to £16K Borke
IBM SYSTEM 34/38 MAAPICS	to £13K Sussex

Software Engineers

CORAL/PASCAL/MASCOT/C Communications	to £13K Glos/Hants/Sussex/Midlands/Manchester
REAL TIME/ASSEMBLER Microprocessor Design	to £13K Suffolk Coast
MILITARY SYSTEMS/RADAR Coral - Mascot	to £14K Hants/Surrey/Essex/S. West
POP/VAX/INTEL Telecomms - ATE	to £13K Derby/Surrey/London/Kent
COMMS/TELECOMS/MOD Mini/Mainframe	to £14K E. Anglia
HP3000/INTEL CAD/CAM/ATE	to £12K Homo Counties
TERMINAL EMULATORS C/Assembler	to £15K London

Snr Appointments

PROJECT LEADER Military Systems	to £15K Berks/Hants
SALES EXECUTIVES Micro - Minic Peripherals, etc	to £25K UK & Overseas
CONSULTANT Military/Defence	to £15K Berks
SYSTEM PROGRAMMING Digital/RSTS/E, BASIC	to £15K Bucks
TEAM MANAGER Computer Modelling/Fluid Flow	to £17K S. London
ICL/PRE- AND POST-SALES SUPPORT	to £16K Berks
SOFTWARE SECTION MANAGER Pascal/C/Microprocessor	to £18K Middlesex

Analyst/Progs

BURROUGHS COBOL Commercial	to £14K Surrey
IBM 34/38/4341 London/Homo Counties/North	to £15K
MICRON MICROS Manufacturing/Production Control	to £16K Surrey
IBM/COBOL	to £12K Scotland

Hardware/Support

APPLICATIONS ENGINEER Peripherals Support/Microprocessor Systems London plus International Travel	to £15K
IBM SYSTEMS SUPPORT	to £15K Derby
TECHNICAL MANAGER Disk Drive Technology	to £15K Sheffield
SOFTWARE TECHNICAL AUTHOR to £15K Honeywell Bull Level 64/DPS 7	Paris
PROJECT ENGINEER Systems/DEC	to £11K Beds/Manchester
ENGINEERS Torelli Micro - Mainframe	to £15K London

You can be sure of hearing about many opportunities like these, U.K. and abroad, when you make Sloangate your first choice. Take the next step in your career with us!

telephone 01 549 9236

Sloangate

The Appointments Register

SLOANGATE LIMITED
214 KINGS ROAD
KINGSTON-UPON-THAMES
SURREY KT2 5HX

THE CLIENT

Is a secure and highly profitable insurance company based in the heart of the city. Founded in 1830, employing some 400 staff with assets in excess of £150 million, they are clearly committed to growth by investing heavily in new development, including a multi-linked system for a recently launched subsidiary.

THE INSTALLATION

Is sophisticated with a 2MB Honeywell 164 running under GCOS with TDS software. They have an on-line system supporting 80 terminals and several micros in stand-alone mode.

THE OPPORTUNITY

SYSTEMS ANALYSTS: You should have two years analysis experience with a background or knowledge of life assurance. Experience of unit-linked systems and the ability to lead and control projects would be an added advantage.

PROGRAMMERS: You should have a minimum of 18 months experience which includes Honeywell 164 and Cobol. On-line experience particularly under TDS would be an advantage. As well as a secure future with excellent scope for career development both positions offer excellent salaries plus a subsidised mortgage. Additional benefits include an annual bonus, share option, flextime, restaurant and sports and social facilities.

For further details contact Francesca Drinkwater or simply clip and return the coupon below.

Name _____
Address _____
Home Tel: _____ Work Tel: _____ Ext: _____ Ref: PC100



D.P. RECRUITMENT SERVICES LTD.
FREEPOST LONDON W5 2HR
TELEPHONE 01 567 5501
24 HOUR ANSWERPHONE

Systems Development Manager Bahrain Computer Centre

Gulf Air the prestigious national airline of the Gulf States, have an IBM 4341 (running under DOS) and a Pmin 750 in the airline's modern Computer Centre in Bahrain. We now need a Systems Development Manager to lead a team of 32 Project Controllers and Analysts/Programmers within our Management Services Department.

Our installation, still comparatively new, will provide scope for creative development. Specific areas of activity will include management of applications development; monitoring of on-going projects; review of functional systems and design; and planning for future systems in terms of manpower and hardware developments.

At least 10 years DP experience is a requirement, including extensive programming and analysis over a diverse range of applications. We would prefer you to hold a professional qualification in Business Studies, Management or Accounting, though lack of formal business qualifications could possibly be compensated for by evidence of business experience. Certainly you will have held a position of responsibility for at least five years and be able to demonstrate the requisite management, technical and administrative skills.

Bahrain, a progressive and stable part of the Gulf, provides an attractive cosmopolitan life-style for Western expatriates. The post is offered on married, accompanied or single status and carries a very rewarding remuneration package including tax-free salary, free air-conditioned accommodation, generous leave entitlement with free return flights to home base and all the other benefits of a successful international airline.

To apply, please write with a full c.v., quoting Ref:SDM1, to the Personnel Controller - UK & Europe, Gulf Air, Terminal 3, Heathrow Airport, Hounslow, Middlesex.

طيران الخليج
GULF AIR

FOR CLASSIFIED ADVERTISING USE DIRECT LINES
RECRUITMENT CONSULTANCIES
(01) 661 8787
DIRECT ADVERTISERS
(01) 661 8080

PROGRAMMER-ANALYST
N.W. LONDON
£8,000-£12,000 + BENEFITS
Dated in a fast growing software house involved in the design, development and support of interactive commercial systems. We require an experienced Programmer/Analyst to join our team undertaking a variety of projects, and to help support our growing export business. The successful applicant will have a minimum of two years experience of commercial software development and support on DEC or similar MINIBUS systems. Please apply to: Mr. Michael Spink, Software Manager, Olympus (Computer Services) Ltd, Rye, Sussex, PO21 2JQ, Tel: 01323 881111.

SOFTWARE PROFESSIONALS The added Ingredient



Our latest contract has all the usual ingredients of a high technology project - tight timescales, exacting customer, complex specification, etc - plus a little extra spice. It's fixed price and worth £2 million!

Now we're looking for all levels of software specialists - professionals who are prepared to meet the challenge that this unique project presents.

If you have at least two years' experience in high-integrity software for mainframes, minis or micros, and want to reap the technical and financial rewards of working on world-class systems, ring 01-953 2030 extension 3156 and Tony Elliott will put you in touch with one of our senior software engineers.

Marconi has for the second consecutive year been awarded two of the Queen's Awards to Industry for export and technological achievement.

Marconi Avionics Limited,
FREEPOST, Elstree Way,
Borehamwood, Herts WD6 1BR.
Please quote reference
MA/83-005.

MARCONI
AVIONICS
A GEC company



(3783)

Bath Software Designers and Programmers to £15,000

IPL Information Processing Limited is an independent software house based in Bath. We have a reputation for producing reliable software for complex scientific and industrial computer applications.

Our continued expansion means we are looking for staff to work on a number of challenging projects. A numerate degree and a minimum of 2 years experience are preferred.

We offer excellent salaries and a very generous benefits package. If you are prepared to work hard and would like to join a company where merit is rewarded, please telephone or write for an application form to:

David Embleton
IPL Information Processing Limited
32/33 Broad Street
Bath BA1 5LR
Telephone 0226 63117

IPL

FOR CLASSIFIED ADVERTISING USE DIRECT LINES

RECRUITMENT CONSULTANCIES
(01) 661 8787
DIRECT ADVERTISERS
(01) 661 8080

Patscentre International Cambridge Advanced Software Techniques Age 26-32 up to £18,000 p.a. + benefits

The move towards software-based products is accelerating: software techniques permit products to be designed from the viewpoint of user need rather than engineering expediency, and software engineering methods and tools are developing to support this trend.

Patscentre is one of the foremost independent organisations in Europe capable of the conception, development and production engineering of software-based products. Our track record is second-to-none and has resulted over the last five years in the development of over 40 software-based products for a wide range of international clients. In order to support our capability we have invested heavily in development tools to support most popular microprocessors. Currently our development environment includes several PDP-11 computers, a Tektronix 8560 multi-user development system and several stand-alone microprocessor development systems. Future investments will expand these facilities considerably.

In order to further strengthen our capability, we are seeking a professional software engineer with proven experience in advanced techniques applied to microprocessor systems and products. We are particularly interested in experience in signal processing software, real-time control, image processing, pattern recognition and artificial intelligence.

Patscentre is part of PA International, the worldwide consulting group employing over 2000 people. Our policy is a clear business orientation, coupled with technical innovation and breadth of thinking. The working environment is excellent and there are ample opportunities for overseas travel to clients and the other Patscentre laboratories in the USA, Australia, Belgium and Spain. Career development within Patscentre offers scope to move rapidly towards project, group or sales management.

If you match our requirements and are attracted by what we offer, please send your cv to Jan Holson, Personnel Manager, Patscentre International, Cambridge Division, Melbourn, Royston, Herts SG8 6DP. Alternatively telephone 0763 61222 for further information.

PA Patscentre International
Cambridge Division



1879



Wirral
AN EQUAL OPPORTUNITY EMPLOYER

SYSTEMS CO-ORDINATOR
£10860-£12174
SERVICE CO-ORDINATOR
£10860-£12174

These posts newly created to strengthen our computer management are an opportunity for those who see their future in management.

The Systems Co-ordinator is responsible to the Systems Manager for the co-ordination and monitoring of systems projects. The Service Co-ordinator will support the Operations Manager to provide our user service.

A full range of applications is currently run on two ICL 2966 machines under DME and VME. There is an existing development plan which includes ongoing networking developments and exploitation of VME 2800. Further information from: Mr. P. W. Yule-Greyling, Tel: 081-647 7000, Ext. 300.

Application forms from the Director of Finance, P.O. Box 2, Treasury Building, Cleveland Street, Birkbeck, Herts SG8 6DP, Tel: 0438 7000, Ext. 575 or 3151, returnable by 10 June 1983.

Systems Analyst

Salary up to £12,000 pa

The British Medical Association is an established and respected professional body. A major systems review is in hand and the next five years will provide a stimulating development challenge. The position is based near Buxton and conditions of employment are good. Existing equipment (under review) includes IBM mainframe with ICB of disc.

Applicants should be over 22 years with at least two years' systems experience and may have either O&M or programming backgrounds.

Please send full CV to Mrs B. E. Dyer, Personnel Manager, British Medical Association, BMA House, Tavistock Square, London WC1H 9JP to be received no later than Friday, 10th June 1983.

(317)



IBM Systems Programmers

"A real opportunity to join a multi IBM mainframe site enjoying constant investment and expansion in 'state of the art' technology".

Regional Sales and Management Appointments

Technical, Sales & Management Appointments

As the Computing Service Company of a highly successful Group of Manufacturing Companies, we have, from the very beginning, provided a complete and efficient computing service to all of our users.

In order to maintain this service, a significant level of investment in computer resources has been maintained, which has placed us in the enviable position of being one of the leading IBM installations in the country. Our current configuration comprises 3081 and 3033 mainframes providing TSO, Batch and IMS facilities to our users, via a highly sophisticated, nationwide VTAM network.

We are now seeking to recruit experienced IBM Systems Programmers to help with the ever increasing demand for our services, and are especially seeking Candidates with around three/four years experience of supporting MVS, JES2 and ideally, IMS and TSO. Familiarity with any of VTAM, NCP or HSM would also be highly advantageous.

It should be emphasised that these positions will provide every opportunity for personal, career and technical advancement and so will allow the successful applicants the real chance of working with a true "State of the art" IBM environment.

So, no matter whether you are working for a user, software house or computer manufacturer, telephone our Advising Consultant Carl Ford on 021-236 3781 (24 hour answering service) or 0562 66565 (Evenings and Weekends) to arrange a confidential and informative interview.

Specialist Computer Recruitment Ltd

SOUTH
James House, 46 James Street,
London W1M 5HS
01-935 0671/488 0481

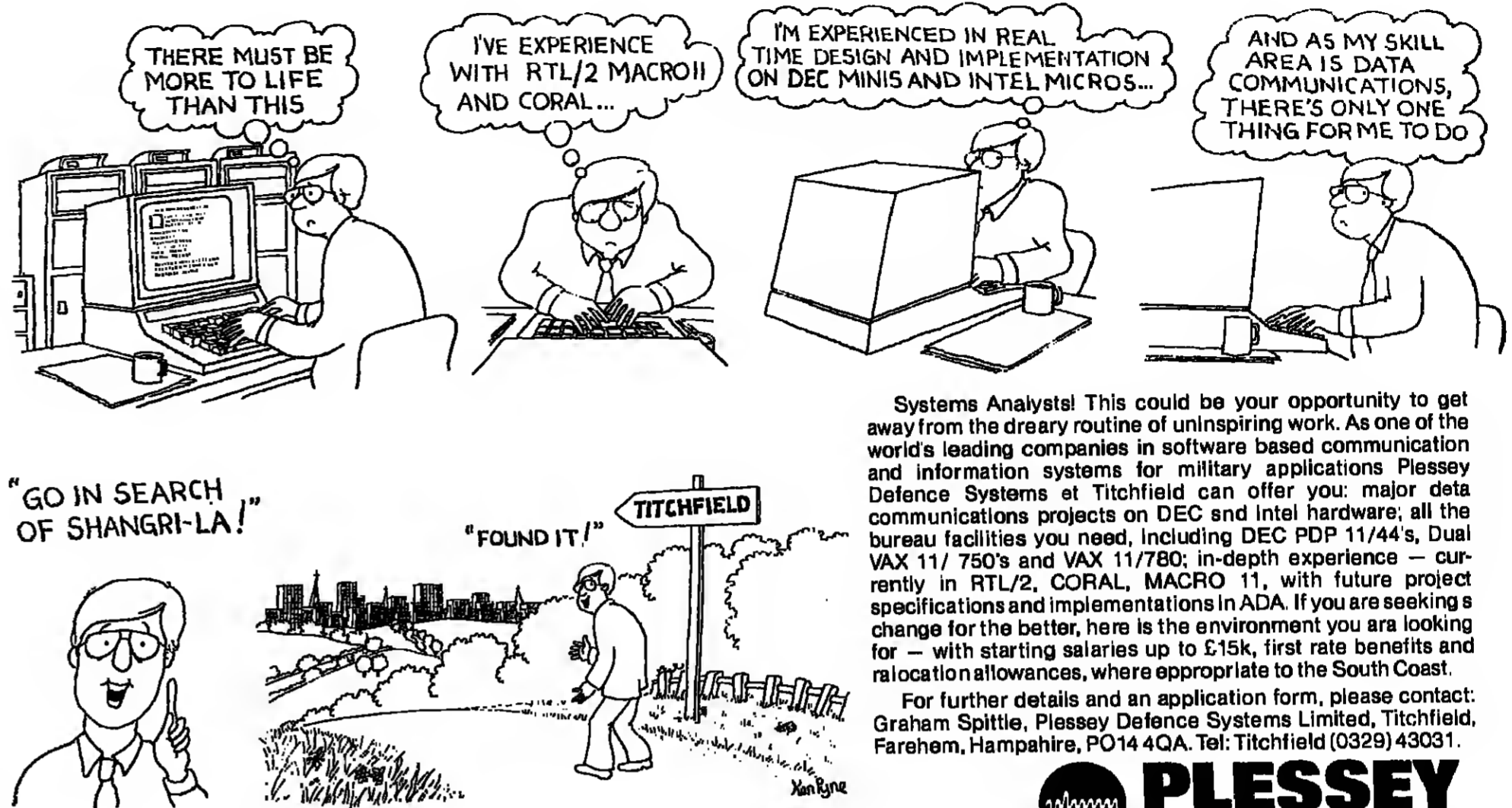
MIDLANDS & INTERNATIONAL
35-37 Great Charles Street,
Queensway, Birmingham B3 3JY
021-236 3781

NORTH
International House, 84 Deansgate,
Manchester M3 2ER
061-833 0427

BRUSSELS
Avenue Louise 327,
Boite 4, 1050 Brussels
010 322-640 7151/71

HOLLAND
Willemsparkweg 62,
1071 H M Amsterdam
010 3120-750947

(3783)



Systems Analysts! This could be your opportunity to get away from the dreary routine of uninspiring work. As one of the world's leading companies in software based communication and information systems for military applications Plessey Defence Systems at Titchfield can offer you: major data communications projects on DEC and Intel hardware; all the bureau facilities you need, including DEC PDP 11/44's, Dual VAX 11/750's and VAX 11/780; in-depth experience - currently in RTL/2, CORAL, MACRO 11, with future project specifications and implementations in ADA. If you are seeking a change for the better, here is the environment you are looking for - with starting salaries up to £15k, first rate benefits and relocation allowances, where appropriate to the South Coast.

For further details and an application form, please contact: Graham Spittle, Plessey Defence Systems Limited, Titchfield, Fareham, Hampshire, PO14 4QA. Tel: Titchfield (0329) 43031.

PLESSEY
electronic systems

(3778)

New European R&D Centre Opportunities in

- *SOFTWARE
- *HARDWARE
- *DOCUMENTATION
- *MANAGEMENT



Have you seen our special Recruitment Feature announcing that Northern Telecom Data Systems is establishing a New Product R&D Centre in South Hertfordshire?

IF YOU HAVEN'T CALL ALAN CARNELL OR ANDREW CARTER ON 01 935 0671

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd
James House, 46 James Street, London W1M 5HS 01-935 0671/488 0481
Birmingham • London • Manchester • Brussels • Amsterdam

New Senior Appointments in Technical Software

Since the earliest days of Electronic Warfare, we at MEL have been numbered among the technology pioneers. Today this means the routine application of the very latest software both to the design and development of components and systems, and to the actual management of complete systems in the field.

Major contracts, from both military and civil clients throughout the world, mean we now need to add a small number of personnel of the highest calibre to our Technical Software Department, here in West Sussex: new appointments offering not only the opportunity to gain an exceptional level of professional expertise at the very forefront of software development, but also to relocate to an attractive area just 20 miles from London, yet only 30 minutes' drive from the South Coast.

CAD Specialist and CAD Engineer

To advise on the selection and support of existing and future CAD programs for use both on internal DEC VAX 11/780s and by external bureaux for applications such as: PCB design, microwave component design, antennae design, circuit analysis, logic simulation, stress analysis and mechanical draughting. The Engineer will assist the CAD Specialist in all these activities. Qualifications for both appointments: a degree in Physics or Electrical/Electronic Engineering, experience in the development of electronic equipment, specific knowledge of some of the areas mentioned and programming ability in FORTRAN and other languages. Refs. TS1 and TS2.

Cross Software Support Specialist

To advise on, implement and support cross software such as: CORAL, MACRO 11, and cross assemblers running mainly on DEC VAX 11/780s and software support tools such as Ada cross compilers, ASSE, automatic documentation, configuration control software etc.

Qualifications: degree in Computer Science, Maths, Physics or Electronic Engineering, plus in-depth understanding of compilers and other support software as specified. Ref. TS3.

Senior Software Design Engineer

To work on the software system design of complex defence systems, particularly EW systems.

Qualifications: degree in Electronic Engineering or Physics plus several years' experience in the development of software for EW systems, some of it at team leader level. Familiarity with formal documentation, RTL/2, Coral and Mascot. Ref. TS4.

Senior Software Engineer

To develop software for complex defence systems, particularly EW systems.

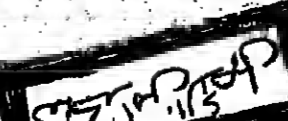
Qualifications: degree in Electronic Engineering or Physics plus several years' experience in EW software development. Familiarity with formal documentation, RTL/2, Coral and Mascot. Ref. TS5.

DEC VAX Operations Specialist

To provide consultancy services for the Technical Software team in the running of three or more DEC VAX 11/780s and a DEC PDP 11/44. Additionally, to introduce enhancements and support systems software. Qualifications: a technical/numerate degree plus experience of supporting DEC VAX computers in a similar environment. Ref. TS6.

Naturally each of these key appointments will command a highly attractive salary and benefits package, including generous expenses for relocation, while the prospects for further career development, both within MEL and within the Philips Group of Companies, are excellent.

To arrange an early discussion, please contact: Sheila Clarke, MEL, Manor Royal, Crawley, Sussex. Tel: Crawley 28787 Ext. 873.



MUMPS + PDP

WEST LONDON c £13,000 + CAR

A very successful company in the Leisure Industry now seek to recruit a person to manage their in-house PDP 11/70 MUMPS based computing environment. Currently an extensive real-time terminal network is running and the person appointed will be responsible for this system and further planned hardware and software developments.

Candidates will need to offer a sound understanding of MUMPS and commercial applications and must be capable of managing and developing a small data processing department. The position reports directly to the Board and the person appointed can expect to liaise closely with all levels of staff in this lively and progressive company.

A negotiable commencing salary and company car will be offered together with an attractive range of company benefits.

Telephone DP Selection Services now quoting reference W5261 to discuss this position further.

01-434 2042

dp SELECTION SERVICES 7 Swallow Street, London W1R 7HD
"We look forward to hearing from you."

(3811)

Sales Executives

Look where dedication will get you...

Acknowledged innovators in the development of high technology, WESTWARD conceive, design and manufacture radar display terminals. A member of the powerful Telecommunications Group, based in Farnborough, Westward Electronics is one of several specialist companies supplying the manufacturing, electronics and medical industries in the UK and abroad. A dedicated approach means that the group is a major and growing force in the development of the radar display market. A range of highly successful products, based on the latest technology, are available. To lead this expansion we require the product of introducing a new, exciting product to the market. If this is your chance to make an impact, a major new terminal, aimed at the commercial applications area, is being prepared for market launch by one of our research companies. We are seeking dynamic professionals who can recognise and grasp this opportunity to advance both earnings and career prospects. You will expect to earn in excess of £20K per annum - there is no upper limit. Call our Consultant, Keith Pangloss, or send your CV today.

WESTWARD

A step in the right direction

MKA Personnel Limited, 25, The Quadrant, Watlington Road, Watlington, Oxford OX1 2QJ
Daytime 0185 519001, 01223 62291 Evenings/Weekends 01223 62291, 01223 62292

THE SUFFOLK COLLEGE OF HIGHER AND FURTHER EDUCATION

LECTURER I IN COMPUTING AND DATA PROCESSING

Required for 1 September 1983

The person appointed will be required to teach on a range of Computing Courses and should have a degree or equivalent professional qualification and commercial Data Processing experience.

Salary Scale £5,355 to £9,257 (under review)

Further details and application forms can be obtained from the Principal, Suffolk College, Rope Walk, Ipswich, IP1 1UR, to whom completed forms should be returned within fourteen days of this advertisement.

Please send large s.a.e. and quote Post No. 5.122.

(3897)

to £500 p.w.

1) VAX 11 - CORAL 11 - FORTRAN Communications equipment Essex, (2 sites and Devon - 1 year).

2) 3008 - Z80 ASSEMBLER - Sells Instruments - Surrey - 3 months.

3) 280 ASSEMBLER - Small Computer Systems - One site (Essex) - 6 months.

MANY OTHER CONTRACTS AVAILABLE FOR REAL TIME SYSTEMS. For more information contact:

ROGER HOWARD, C.E., M.I.E.E., CLIVEN CONSULTANTS, 10, The Quadrant, Watlington, Oxford OX1 2QJ.

(3893)

CLIVEN

BOX NUMBERS

Use number replies should be addressed to:

Box Number

Box Number

NEW ENGLAND, USA

THIS YEAR, WANG WILL INVEST WELL OVER \$100 MILLION IN R & D.

**SOME PEOPLE CAN'T LEAVE WELL ENOUGH ALONE
PRINCIPAL AND SENIOR SOFTWARE ENGINEERS \$30,000 - 45,000**

At Wang, state-of-the-art resources and a top-notch professional team combine to create the best products in the industry like the Wang VS, WangNet and the Wang professional computer - products which provide totally integrated office systems.

With R & D participation in all phases of product development and a corporate philosophy that supports timely introductions, Wang has all the elements that are essential to the professional challenge.

OPERATING SYSTEMS DEVELOPMENT GROUP

The following positions are for the VS Operating Systems Department which is responsible for the design, development and maintenance of the operating system, which is virtual memory, multi-tasking system for the 32-BITVS business computer - one of the products that has made Wang the industry leader in interactive data processing and office automation.

1. Working with the Released Product Development Group, the successful candidate should possess a solid background in operating systems principles as you will be responsible for maintaining and/or supporting them and providing assistance in finding system problems and developing solutions.
2. Working with the Released Product Development Group the successful candidate should be well versed in operating systems principles and should possess both operating systems development and support experience. As you will be working on ways of making the operating system more supportable and tolerant of errors you should possess a strong systems programming background with OS emphasis.
3. Working for the Internal Development Group you will be responsible in assisting in the design and development of the VS Operating Systems kernel, and the successful candidate should have extensive assembly language experience and should be well versed in operating systems issues, especially those that relate to virtual memory, process control, memory management, etc.
4. Working for a new Product group developing a new generation of CPUs. The successful candidate should understand computer architecture and CPU hardware design and a solid background in operating systems design and development. Some of the issues that will be addressed in this group are very small systems, multiprocessing, high availability virtual memory, disk subsystems and co-operation with intelligent I/O processors.

COMMUNICATION SYSTEMS NETWORKING GROUP

Interconnect Systems

7. Working on interconnect projects the successful candidate should possess expertise with IBM telecommunication technology and IBM operating systems.
8. Working on the development of emulations between Wang hardware and other vendors, the successful candidate should possess knowledge of telecommunications on 3270, 2780/3780 and/or async with assembler language programming ability.

TRANSPORT SYSTEMS

9. Working on designing, implementing and testing communication software for Wang products to support WangNet, X21/X25, Teletext, leased and switched circuits, end network monitors, the successful candidate will possess communications experience with HDLC, X25 end/or carrier sense multiple access with collision detection. Experience with microprocessors, operating systems and assembler or PL/M is necessary.

NETWORK SYSTEMS

10. You will be applying your expertise to the following projects:- Communication access methods; file transfer, remote terminal attachment, configuration and control of network services for WangNet, end enhancement of network management architecture. The successful candidate must have a track record in one or more of the above areas and experience with assembler and/or PL/M, PL/I.

DISTRIBUTED SYSTEMS DEVELOPMENT GROUP

This group is currently designing and building an exciting new distributed processing system for the next generation of Wang office and data processing products. Planned as a building block, this system will combine a networking operating system with a distributed access relational database management system to provide state-of-the-art solutions to data distribution, retrieval, and archiving, all in the WangNet environment.

11. Participating in the design and implementation of a fully distributed network operating system you will be working on file directory management, user authorisation and security issues, network topology control, data archiving systems and network node initialisation. The successful candidate should possess substantial experience in the areas of operating systems development, networking or distributed processing.

12. Assisting in the database and data management area, you will be working on storage device control, index file servers, query decomposition and processing, and transaction and recovery systems. The successful candidates should therefore possess experience in one or more of the above areas.

DISTRIBUTED OFFICE SYSTEMS GROUP (VS/PC Distributed Systems Development)

13. Working on the design and development of distributed systems using Wang VS and WPC systems in support of resource sharing, distributed application development, distributed database access and distributed query systems, the successful candidate should possess a systems engineering background with fluency in assembler and a working knowledge of structured and unstructured file systems and relational databases, operating systems, network architectures and distributed database systems concepts.

SPECIAL SYSTEMS DEVELOPMENT GROUP

14. This new group has been set up to provide operating system enhancements to major Wang users. The successful candidate should possess an interest or past experience, with the definition and development of 'special' or 'non standard' systems and experience should include operating system, language, or communications development.

OFFICE SYSTEMS DEVELOPMENT GROUP

15. Working with a small creative group you will be responsible for developing state-of-the-art database products including query processing, report generation, message/calendar processing and database access tools. The successful candidate should possess substantial exposure to micros, assembler programming and experience of office automation systems. Knowledge of Z80 and 8086 is desirable.

BENEFITS

These career positions for Principal (7 years+ exp.) and Senior (6 years+ exp.) Software Engineers will be based at their Lowell, Mass. headquarters and provide exceptional opportunities for talented and professional software engineers to expand and continue their careers working in the heart of America's East Coast high technology belt.

Apart from a comprehensive relocation package, for you and your family, Wang offers one of the best benefit programmes in the industry; this includes profit sharing, stock plans, company paid dental, medical and life insurance, etc.

WANG

your career accomplishments and future objectives. Our clients will be interviewing for these positions, in London, in early July.

CRS - EJ RHODES

International Recruitment Consultants

C. LONDON DATA BASE DESIGNER c.£16,000
10 years' OP experience plus OL1 or IMS expertise. Must have designed an IBM O/Base. All new development work.

N. LONDON ASSISTANT D.P.M. c.£15,000
International Company seeks an assistant to the D.P.M. Applicants should have a broad business background and knowledge of IBM Sys 38 with RPG III programming skill.

S. LONDON IBM PROG & ANALYST c.£14,000
Engineering Company seek a Senior Programmer and a Senior Analyst with five years' experience of IBM COBOL with CICS. Business and financial background preferable.

C. LONDON HONEYWELL ANALYST c.£14,000
Entertainment Company seek five years' experience with two years' database, exposure on IOS or IDMS.

MIDD. HONEYWELL ANALYST/PROG £12,000
Four years' commercial experience required. Futuristic company. TDS and associated systems secure top salary + valuable product discounts.

SURREY ICL PROGRAMMERS £9,500
Insurance Company seek two years' VME COBOL. Relocation to Stockbroker belt paid.

S.W. LONDON DEC PROG/ANALYST c.£12,000
Two years' experience of COBOL/FORTRAN plus VAX 11/780, VMS. Knowledge of DATA/REVE, INFO, FMS useful.

S.E. LONDON DEC PROGRAMMER c.£11,000
Financial Company require two years' ASSEMBLER and knowledge of PDP11/70, RSX, A Level or University education. Project Leader status, telecomms area, support new developments.

LONDON & H. COUNTIES NETWORK CONTROL £9-£10,000
Three IBM vacancies. Expertise in NPOA, SSC COMMS, S+A COMMS & PROTOCOL of special interest.

OPERATORS!!!

A wide range of vacancies. All levels of seniority and pay. All systems covered. London and Home Counties based.

FRASER PHILIPPS COMPUTER SERVICE
REGENCY HOUSE
235 REGENCY STREET
LONDON W1R 8JU
01-408 1611
01-401 4040 (evenings)

FRASER PHILIPPS

For The SYSTEMS ANALYST

Who Wants To Get Involved

To 21111 (+ Daily Interview)

Mr. Cunningham

When a company changes its hardware it provides a major challenge to the D.P. department. When that department is small it needs the services of a Systems Analyst who can handle responsibility and get involved with all aspects of the job including user liaison and specification through to implementation.

The rewards for someone who can do this are great. That person becomes a key figure in the installation and is fully involved in all aspects of the work which the department undertakes.

If this is the sort of challenge which appeals to you, you are probably the right sort of person for the job. In terms of experience, the company has installed a Honeywell mainframe and a knowledge of the GCOS operating system and COBOL would be advantageous. Sound commercial experience however, coupled with the right temperament, constitutes relevant experience.

Major benefits include family BUPA, relocation assistance if required, bonus scheme after qualifying period and index linked pension.

For further details telephone Keith Taylor or send a full C.V.

MCL

McCOURT COUSINS LTD, 27-29 Greyhairs Road, Reading, Berkshire

Tel: Reading (0734) 595346 (24 hours)

Wigham Poland Ltd.

As a major firm of International Lloyds Brokers we are progressive and successful in our insurance business. We match this with innovative and sophisticated systems based on our 4341 IBM Mainframe supported by four Syatime computers (PDP 11/60 and 11/70a) situated in Barking.

An efficient operating service is essential because Data Processing is an integral part of Group procedures and has a direct impact on profitability. A justifiable reputation for speedy development has resulted from meeting an ever-increasing demand from users eager to take advantage of systems services.

We are seeking good calibre staff for three key positions in order to maintain and enhance this high quality service.

COMPUTER SERVICES MANAGER

We require an experienced Data Processing Professional to take responsibility for all operational aspects of our department. The main responsibility will be:

- Providing real-time facilities to the users in our City and Barking offices. Currently, we have a network of 100+ VDUs and 20 printers in those locations and in addition we will be providing on-line facilities to clients throughout the UK later this year.
- Maintenance and operation of all computer equipment.
- Management of our team of operators, technical support and client service personnel.

The successful candidate will be aged 28-40, will have had at least five years' experience in a management position and will be able to demonstrate ability to communicate at a senior level.

A sterling salary of about £15,000 p.a. may be anticipated.

SENIOR COMPUTER OPERATOR

We are looking for a responsible person with at least two years' experience of operating computers.

He/she will be required to do shift work and be capable of taking full responsibility of the computer network whilst on shift duty.

The successful candidate will work with either IBM mainframes or DEC minicomputers. A knowledge of VM D.O.S. VSE end/or RSTS will be an advantage.

Salary will relate to experience and is likely to be in excess of £7,000 plus shift allowance.

PROGRAMMER/SENIOR PROGRAMMER

For this post, we are looking for a programmer with at least two years' experience. A working knowledge of Basic + or Basic + two will be an advantage.

An ability to produce program specifications and manage small programming teams must be demonstrable in addition to proven technical ability.

Remuneration is negotiable and is unlikely to be less than £9,500 for the right candidate.

In return, we offer excellent working conditions and career prospects. Other benefits include flexible working hours, subsidised restaurant, luncheon vouchers, season ticket loan facilities and sports and social activities.

Please telephone or write to:
Mrs T. Strong, Wigham Poland Limited
16-30 Wakering Road, Barking, Essex
Telephone: 01-594 7222

(3708)

CONTRACTORS

ARE YOU ELIGIBLE

To celebrate the opening of our new Croydon office we are offering every contractor who works through us between 1st April 1983 and 31st October 1983 the chance of a free winter holiday.

Register with us now by calling Debbie or Kelly on (0442) 40761 or Isabel on 01-681 8311 and make sure you become eligible.

Rules:

Computer Search (Contracts) Limited will hold a draw at the beginning of November, the winner will receive a holiday paid for by Computer Search (Contracts) Limited (flight, food, accommodation for two people, two weeks in either Italy or Morocco to be taken between December 1983 and March 1984 inclusive). To qualify, you must have worked through us for any period of time between 1st April 1983 until 31st October 1983.

IBM

IBM MVS ADF COBOL
IBM OS/MVS JSP PL/I
IBM DOS/VS COBOL RPG II
IBM MVS ASS COBOL
IBM MVS DL/1 CICS COBOL
IBM MVS IMS DB/DC DATA ANALYSIS THIRD
NORMALISATION
IBM IMS DB/DC
IBM IMS DB/DC
IBM SY38 RPGIII
IBM DOS/VS SSX EXPERIENCE
IBM SERIES 1 RPB PL/1 ASS FINANCIAL
BACKGROUND

PROG
PROG
ANAL/PROG
PROG
ANAL/PROG
SYS/ANALYST
PROG/ANALYST
SYS/ANALYST
PROG/ANALYST

PROG

OTHERS

MED SYSTEMS DMS 2 COBOL
B8800 CMS GEMCDS RJE/SYCOM NDL/MCP
B8800 DMS 11
N.C.R. VRX COBOL
UNIT TRUST EXPERIENCED
COACVL

PROGS
SYS/PROG
DATABASE DESIGNER
PROG
SYS/ANALYST
DATABASE DESIGNER

HARDWARE ENGINEERS

LARGE MAINFRAME EXPERIENCE (LONG CONTRACTS - LONDON)
MINI ELECTRONICS

QUALIFIED PROJECT ENGINEERS
DESIGN ENGINEERS

ICL

2900 VME IDMS TPMS COBOL
2900 VME/B IDMS COBOL
2900 VME/B IDMS
2900 VME/B
2900 VME SCL IDMS COBOL
2900 VME SCL IDMS COBOL
2900 G111/DME
ICL IDMS DATA & FUNCTIONAL ANALYSTS
EXPERIENCE
1900 G111 IDMS TP COBOL/FORTRAN
ME29 TIME RANGE COBOL
ME29 TIME RANGE COBOL MTS TPS

PROG
ANAL/PROG
DATABASE DESIGNER
DESIGNER
PROG
ANAL/PROG
SYS/ANALYST
SYS/ANALYST

TEAM LEADER

PROG

PROG

ANAL/PROG

PROG

PROG

SYS/ANALYST

KUWAIT PROG

KUWAIT SYS/ANALYST

NOTE: KUWAIT POSITIONS ARE SINGLE
STATUS

MINIS & MICROS

VAX 11/780
VAX BASIC
VAX VMS PASCAL
VAX VMS COBOL
POP 11 ABS AIMS
POP 11 RSX 11/D CORAL
POP 11 RSX 11/M CORAL
PDP 11 RTL 11 RSX 11M
ANY MINI/MICRO UNIX C
ANY MINI/MICRO UNIX C/P/M C
ANY MINI/MICRO PASCAL
MICRO PL/M PASCAL
ANY MINI/MICRO CPM 86 ASS/GRAPHICS
APPLE/PET BASIC
DATAPOINT DATABUS or DATASHARE
D.G. BUSINESS BASIC RDOs
WANG VS COBOL
H.P. QUICK COBOL

SYS/ANALYSTS
ANAL/PROG
PROG/ANALYSTS
PROG
PROG
VARIOUS
PROGS
PROGS

SOFTWARE ENGINEER

SOFTWARE ENGINEER

SOFTWARE ENGINEER

SOFTWARE ENGINEER

PROG

PROG

ANAL/PROG

PROG

PROG

SYS/ANALYST

with Visual Interactive Packages Cowley, Oxfordshire

We are B.L. Systems, a highly successful independent Systems Company, and since our formation in 1979, we have rapidly expanded to achieve a turnover of some £30 million per annum. We actively compete for business on the open market, selling our products, services and expertise to all sectors of the industrial, commercial and finance sectors. Notable results have been achieved and we have an impressive portfolio of Clients which is continuing to increase at a high rate. We have vast resources of hard earned expertise to offer to our Client base and pride ourselves on the range of activities in which we can demonstrate proven and successful problem solving abilities.

Whilst our main Data Centre and Headquarters are situated in Redditch, Worcestershire, much of our activity is carried out from strategic sites throughout the country. One such location is at Cowley, Oxfordshire where our Operational Research Group has been pioneering the development of sophisticated, yet user friendly visual interactive simulation and modelling packages.

Opportunities in Modelling and Simulation

At Cowley we have been building on the theme of "Decision Support Systems" and have developed several exciting and innovative products designed to help resolve planning problems. These include the award winning simulation package **SEE WHY** and the transport/route planning aid **VISIT**. The acclaim and recognition that has greeted this family of products has created a healthy environment for further expansion in the UK and has led to the opening of an office in the USA, and consequently we need to significantly strengthen our team with more personnel. We are prepared to be flexible when considering applicants, because whilst specific experience is important, we are seeking the "right" individuals for our needs. In the past, we have found that an OR or Mathematical Modelling background can provide useful experience for our area, and a degree, whilst preferred, is not essential.

Support

We are seeking **FORTRAN** based Programmers to provide Sales Support to new and existing Clients. This will involve problem definition and problem solving, as well as an element of public relations. There is also a need for a Support Team Administrator to ensure co-ordination of support activities in a timely fashion. This position may well suit a less experienced individual as a first step in a career in this field.

Development

Again, we need a **FORTRAN** fluency in individuals capable of contributing to the development of new software products, as well as assisting, when necessary, in support activities. An **ASSEMBLER** knowledge would be a useful addition, as would OR related experience.

Sales Executive

To promote and sell our Route Planning Package **VISIT** to Companies requiring cost effective and controlled transport systems. A sales background or experience within the transport industry or vehicle planning would be advantageous, but is not essential. Obviously a communicative and personable individual is required.

It must be stressed that our philosophy is one of flexibility and the technical positions could suit a variety of backgrounds. However, they will appeal to those seeking involvement with innovative micro based systems and who would like to develop further into this exciting area.

All of these positions offer variety and challenge, including opportunities for short assignments abroad. We can provide a good salary and benefits package, including attractive relocation assistance, where applicable.

If you would like to be considered, please contact **Martin Stainthorpe** on 021-236 3781 (24 hour answering service) or submit a detailed CV to him at the Birmingham office.



...leading the way

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH
James House, 40 James Street,
London W1A 3BS
01-435 0071/488 0461

MIDLANDS & INTERNATIONAL
25-27 Great Charles Street,
Queensway, Birmingham B3 3JY
021-236 3781

NORTH
International House, 84 Deansgate,
Belle 4, 1050 Bruxelles
061-838 0427

BELOW
Avenue Louise 327,
Belle 4, 1050 Bruxelles
010 822-840 7161/71

HOLLAND
Willemsparkweg 92,
1071 H.M. Amsterdam
010 3126-76047

Denotes large and/or urgent requirements. Immediate start your name in the hat

A Computer Search Contract Starts by calling Kelly on 0442 40761 or Isabel on 01-681 8311

Computer Search Contracts Ltd
Hamilton House, Marlowes,
Hemel Hempstead, Herts, HP1 1BD

(0442) 40761

Computer Search & Selection (Southern) Ltd
6th Floor, Carolyn House, Dingwall Road,
Croydon, Surrey CR0 9XF

01-681 8311

**Computer
Search
Contracts**

هاتف النسخ

Systems Engineers London Based

£11-17,000

A large consultancy/systems house needs staff with research or defence project experience in the areas of navigation, signal processing, underwriter technology, automotive engineering, electronics or communications. Candidates should be knowledgeable about good quality software and systems design. Ref 2605/A

RPG II/III Experts West London

£13-15,000

Hugely successful systems organisation needs real experts on RPG II or III to lead various projects. Applicants must have the personality to complement their drive/overage skills to be offered our client's above average rewards and opportunities. Ref 2605/B

Systems Analyst Herts

£9-12,000

A well-established distribution organisation requires two analysts with at least two years' experience of commercial systems. For the more senior position a background in programming and experience of accounting systems is desirable. Attractive location, good salaries and relocation assistance offered. Ref 2605/C

CORAL Programmers North Hampshire

£8-14,000

Expanding software house specialising in real time software development in the military and industrial systems field requires additional staff. For the junior positions six months' programming experience using CORAL is essential. More senior candidates will also need experience of GEC 4000 or DEC equipment. Ref 2605/D

Systems Designers/Programmers Surrey + Overseas Possibilities

Up to £12,000

Additional staff with an Honours Degree in Computer Science or related discipline are required to develop software and systems for non-stop applications including reservations and communications. Fluency in Fortran or Pascal on PDP 11/VAX is essential and knowledge of an assembler is desirable. Ref 2605/E

Computer Professionals

4, Kendrick Mews, London SW7 3HG Tel: 584 8790

Analyst Programmers London and West

£7½-10,000

A systems house specialising in the development of sophisticated systems for the finance sector wishes to recruit keen programmers to be involved in a range of activities encompassing systems design, programming, consultancy and user support. A minimum of 12 months' on-line programming experience is required and a mature, flexible and professional attitude is of prime importance. Ref 2605/F

Real Time Professionals Surrey Border

£8-18,000

High technology systems house needs programmers, designers and consultants to work on the development and implementation of high reliability, fast response defence, information and communications systems. Candidates must be educated to degree level and possess at least two years' real time systems experience. Knowledge of Argus or VAX would be of particular interest. Applicants should have the personal qualities to succeed in a consultancy environment. Ref 2605/G

Analyst Progs & Systems Progs North West London

£11-14,000

Our client is the UK subsidiary of a major US systems house specialising in on-line systems on Tandem computers. Due to a growing order book they need additional staff to work in the areas of Electronic Funds Transfer, Message Switching, Reservation Systems and Videotext Services.

To apply, Analyst Programmers must have four years' experience in Interactive Transaction Processing, Database or Retail Banking Systems. Systems Programmers - at least two years on one of the following: Message Switching Systems; Communications Software; Operating Systems Development; Device Handler Development. Ref 2605/H

CP Computer Professionals looks after the professionals.

IBM Project Manager West London

£16-19,000

A consultant is needed with absolutely top-class IBM project design and management skills. Substantial experience of CICS and DL/I as applied to a range of commercial applications is required with the interpersonal skills to deal with clients. Ref 2605/J

Police Systems Berkshire

Approx £14,000

Project leaders and programmers with experience of Police or similar command and control systems are needed to meet new orders obtained by our client. Knowledge of Ferranti computers is necessary for the senior position and advantageous for the others. Excellent employment conditions and career prospects. Ref 2605/K

Analyst Programmers London/Overseas

Up to £12,250

Systems house with worldwide client base needs Hewlett Packard experts to work on bespoke versions of complex order processing software. Specification and implementation can be overseas - development in London. Five years' experience, the last two on HP 3000 is needed for these positions. Ref 2605/L

Electronics Engineers Surrey

Up to £12,500

Vocancies exist for candidates with a qualification in electronics and at least two years' software development experience to work on complex defence systems. Microprocessor or CORAL experience advantageous. Excellent benefits and relocation offered. Ref 2605/M

Micro S/W Development Beds

£9-16,000

Vocancies exist for graduates with a minimum of two years' Assembler programming experience to join teams developing microprocessor-based P.O.S. systems. Software design experience and knowledge of BASIC or PASCAL would be advantageous. Our client offers first-class career prospects. Ref 2605/N

For further information, write to Computer Professionals quoting the advertisement reference no; alternatively phone Isabel Bruce or David Fletcher on 01-584 8790.

MANAGEMENT & EXECUTIVE SELECTION

telephone 01-637 9611

CUSTOMER ENGINEERS

Various UK locations and DUBLIN

£9-10k + O/T + S/BY + 2 litre car

Tandem Computer Inc was founded in 1974 to meet the market need for reliable, fault-tolerant, inter-active data processing systems. Today more than 2500 Tandem systems are in use in more than 25 industries worldwide.

With a unique system design, superior technology and personnel, Tandem has every reason to anticipate continuing success and aggressive growth in the future.

Customer engineers wishing to be part of this success are required in LONDON/WEST, LONDON/HANTS/WILTS/SCOTLAND/NORTH WEST/DUBLIN. Tandem's trouble-shooting philosophy is a sophisticated mix of hardware and software involvement, therefore successful applicants will possess not only three/four years' experience maintaining large mini/mainframe systems, but also an interest in software.

Training is on-going but is initially for two months in Germany/America. In addition, earnings will be £12K-£14K first year, a 2 litre car is provided and stock options, PPP, 24 days holiday are just some of the excellent benefits offered.

Tandem offer a genuinely interesting and rewarding career. To discuss this opportunity call Chris Bond or Phil Jolice on 01-637 9611.

TANDEM

Suite 201/6 Albany House 324 Regent Street London W1R 5AA 01-637 9611

MANAGEMENT & EXECUTIVE SELECTION

CONTRACTORS

RTL are seeking experienced personnel in the following categories

VME Cobol - Programmers/
Team Leaders

TPMS & IDMS - Designers

System 25 - Specialists

CICS - Specialists

System Builders/Quality

Controllers

RATES FROM £250 - £500
PER WEEK

We offer fixed term contracts of varying duration involving challenging projects in several locations. Every assistance is offered to 'first time' contractors in setting up their operation and administering business affairs.

For further details of these contracts please contact John Reed on 0734-788213 or send full CV to:



RTL Software Services Limited
Wingmore Lodge, 2 Ross Street, Wokingham,
Berkshire RG11 1XU. 0734 788213.

your appointments register Sales Executives/Managers

Herts £20,000 on target
Computer bureau experience required, selling a wide range of mini and micro based solutions.

Nationwide £16,000 package
To sell computer related equipment/electronics to industry, banks and scientific research establishments. Experience of micro processor base equipment or data communications particularly useful.

SW London £13,000+
Selling technical software and engineering consultancy services.

Kent £13,000+
Technical sales experience required, communications systems of particular value.

SE England £25,000 package
C.O.M. experience of particular relevance, to sell hardware and associated software.

Middx. £30,000 on target
Sales Manager to motivate and manage existing sales force. Should be knowledgeable about small computer systems with successful experience in selling them - preferably in turnkey packages.

Edinburgh/Staines £23,000 on target
Experienced in selling small (micro or mini) computers preferably as turnkey systems and preferably to small companies, professional offices or lone traders.

Nationwide £25,000 package
Young expanding company with a unique market position to sell graphics and CAD/CAM equipment based London, Home Counties, Midlands and the West.

You can be sure of hearing about many opportunities like these, U.K. and abroad, when you make Sloangate your first choice. Take the next step in your career with us!

telephone 01 549 9236

Sloangate
The Appointments Register
SLOANGATE LIMITED
DOMINIC HOUSE
171-177 LONDON ROAD
KINGSTON-UPON-THAMES
MIDDLESEX KT2 6RA

SYSTEMS ANALYSTS

M.K. ELECTRIC are shortly changing to an IBM 3083 and are converting systems to MVS.

We are currently seeking experienced Systems Analysts to concentrate on one of the following areas: Finance, Marketing or Manufacturing.

The successful candidate will be involved in the development of all stages of systems projects, covering new and revised systems.

Applicants should have at least three years' analysis experience gained in an IBM environment, plus experience in 'on line' systems development and data base techniques.

Candidates should be flexible and be able to work both as a team member and Project Leader, depending upon requirements.

In addition, applicants should be educated to at least 'A' level standard with a self-motivating approach to projects and possess the ability to communicate effectively at all levels. Previous programming experience, particularly COBOL, would be an advantage.

We would expect the person appointed to reside within reasonable daily travelling distance.

Preferred age range 25-40 years.

We can offer an attractive salary and the normal range of fringe benefits associated with a large company.

Please apply in writing, giving details of age, qualifications, experience and current salary to:

The Personnel Officer
M.K. Electric Ltd.
Shrubbery Road
Edmonton, London N9 0PB
Tel: 01-803 3355 Ext. 15

FOR CLASSIFIED ADVERTISING USE
DIRECT LINES
RECRUITMENT CONSULTANCIES
(01) 661 8787
DIRECT ADVERTISERS
(01) 661 8080

HMC GLOBAL LTD
Specialising in On-board Monitoring and Guidance Systems (HELM) and VESSEL Performance Analysis the Company is seeking

COMPUTER EXPERT for Marine applications

Candidates with an interest in marine applications in Mathematics or Computer Studies with at least two years' experience with computer applications in industry. Competitive salary and benefits are offered.

Write with detailed c.v. to:
HMC GLOBAL LTD
BUCKINGHAM HOUSE
87 BUCKINGHAM STREET, LONDON WC2N 6BU (1723)

FOR
CLASSIFIED
ADVERTISING USE
DIRECT LINES

RECRUITMENT
CONSULTANCIES
(01) 661 8787

DIRECT ADVERTISERS
(01) 661 8080

ANALYST/PROGRAMMER £18,000-£20,000 tax free

A leading Saudi Arabian software house based in Jeddah wishes to expand their operations with the appointment of an Analyst/Programmer with 4 IP3000/MPE IV experience and preferably IBM experience operating under DOS/VSE-COBOL-CICS.

Additional benefits include free accommodation, 30 days' leave, car, medical, air fares, etc. Interested candidates should forward a detailed resume or contact Richard White, Melle Technical Services Group, 334 Euston Road, London NW1 3AG. Tel: 01-388 2284. (1687)

COMPUTER OPERATIONS VACANCIES LEEDS

Senior Operator/Operators c. £6,400 + shift allowance

BENEFITS

The Society is committed to the use of modern data processing technology and therefore can offer excellent scope for career progression with the opportunity to be involved in the operation of advanced systems. In keeping with these challenging career opportunities, an excellent remuneration package is offered including contributory pension scheme, free life assurance and concessional mortgage assistance.

Interested applicants should telephone Leeds 438181, Ext. 2373 for an application form and vacancy specification quoting reference number CW 5/83 or write to:

Mr J. Clark MBIM,
Personnel Manager,
Leeds Permanent
Building Society,
Permanent House,
The Headrow,
LEEDS LS1 1NS.

the Leeds
PERMANENT
BUILDING SOCIETY

Enquiries will be treated in the strictest confidence. Envelopes should be marked 'Staff Confidential'.



This genius of the past created your software career for the future



Marconi

Radar Systems



MIDLETRON DISTRIBUTION

APPLICANTS (TEMPORARY)
Applications are invited for the above temporary position for the Department of Computing Studies and Academic Services. It is an opportunity to gain experience in the areas of computer computing support activities, such as data processing, word processing, students, and programming. The successful candidate will have responsibility for the turning on and off of the computer system. Preference will be given to candidates with qualifications at degree level, but applications from those with other qualifications and suitable experience will be considered.

The appointment will commence on 1 September 1984 as soon as possible thereafter, and will run until the end of July 1985. The salary will be on the scale for temporary staff on a part-time (under review), plus UGSS (see current issues).

Applications (one copy only) to: The Director of the School of Computing Studies and Academic Services may be made, and will be accepted by the School of Computing Studies and Academic Services, University of East Anglia, Norwich, NR4 7TJ, until 3 June 1984, not later than Friday 3 June 1984. The closing date of publication of this advertisement is 2 June 1984.

Please apply with full curriculum vitae to: A. J. Gacohus, Esq., MBIM, AIPM, Personnel Manager, Jones Lang Wootton, Kent House, Telegraph Street, London EC2R 7JL.

Please send your cv to:
Laurence Blackall
Frost & Sullivan Ltd.
104-112 Marylebone Lane
London W1M 5FU
Tel: 01-486 8377

Kawill Systems Limited
Clive House
Queena Road
Weybridge
Surrey KT13 9XB
Tel: 0932-52046

Salary Grade SO1 \$8656 - \$8231 pa.
Bassettsville District Council currently have a vacancy for an exper-
ienced Analyst/programmer wishing to progress into manage-
ment.
The post holder has responsibilities in development and training.
The Council operates a CMC coverage through the Nottingham-
shire County Council (NCS) and the latter has a number of training
recognition system and a CMAA training. The letter is being sent
to the new CMC/CMAA housing. This additional is being added
to the DLO CMAA system for which it will be purchased.
Interested candidates may obtain a more detailed job specifica-
tion upon request.
Application forms can be obtained from Personnel Office, Council
(Tel: Worcester 476681) ext. 788 and should be returned by Friday
17th June 1988.

Box Number _____

10 min and more phone Angela Wheeler on Swindon (0793) 26161 ext. 3435 or write to The Personnel Officer, Townswomen's Borough Council, Civic Office, Swindon SN1 2HX

SWINDON
An equal opportunities employer

TCR

ANALYST PROGRAMMERS to £11.
A rare opportunity has arisen to join a busy and
creative CITY-based company who are world leaders
in their field. If you enjoy problem solving and ple-
a user contact these positions will undoubtedly
paid. **TRAINING** in CICS is offered and we would like
hear from candidates with IBM COBOL experience who
are prepared to work hard to realise their full poten-
in an environment where ample scope will be given
career development.

LONDON OABED **CE110**
A leading manufacturer in the DATA PROCESSING industry is URGENTLY seeking a mature ANALYST/PROGRAMMER to undertake PROJECT MANAGEMENT RESPONSIBILITY. With major development work being the area under consideration, candidates will need to demonstrate very good COMMERCIAL ANALYSIS SKILLS, major project completion from start to finish and DEC, HP, PRIME or other mainframe experience. An interest in office automation and good communications skills are also an advantage. Attractive BENEFITS and excellent CAREER prospects.

E. MIDLAND cET1,
The group computing function of a large manufacturing concern is looking for an experienced Systems Analyst. A minimum of five years' overall experience with about two years spent in Analysis, preferably with some payroll experience would be ideal.

For a discussion outside of office hours, 'phone 02807 40 or 01-885 3819. Messages regarding Midlands based positions can be left on 021-622 3838.

6 Liverpool Street London EC2M 7NH Telephone 01-283 9941 Telex 25851
Monaco House Bristol Street Birmingham B5 7AS Telephone 021-622 2045 Telex 334237

A salary of £14,000-£15,000 and a generous benefits package is offered, as well as excellent prospects for rapid advancement within the company. For further information about this vacancy, either telephone Steven Knowles-Baker, on 01-370 2012/3 or send a brief c.v. to him at N.K.S. Associates Limited, 159A Gloucester Road, London SW7 4TH, as soon as possible. All enquiries will be treated in the strictest of confidence.

8 Mint Walk, Croydon, Surrey, CR0 1EA.

If you can do your job standing on your head...



Isn't it time you changed position?

All too often the firm you've joined to further your career in data processing can offer you stability and not a lot besides. No new challenges, no widening of experience.

Are you tired of writing the same type of programs?

Isn't it time you considered the variety and other advantages that a career with Boots can offer?

We're one of the biggest retailing and manufacturing groups around, with over 1000 branches in the U.K. alone. We have a 400-strong D.P. Department based at Nottingham, where systems development staff work in small project groups on an extensive range of D.P. applications: Inventory Control, Marketing, Personnel Database, Production Planning, and Research Trials - to name but a few. You'll broaden your knowledge with Boots, gain experience of projects and systems and have the opportunity for career advancement within one organisation.

If you want to make a move, why not combine a new challenge with a secure future and join one of our Teams working in the following Project Areas.

These opportunities are open to PROGRAMMERS/ANALYST PROGRAMMERS/SOFTWARE PROGRAMMERS with at least 2 to 3 years' experience.

DL/1 Personnel Database

- working with on-line systems, using CICS/INTERPERS, providing support for the integrated Payroll, Pensions and Personnel Systems and having additional responsibility for applications such as Statutory Sick Pay. IBM experience essential, knowledge of DL/1 and/or Detamanager desirable.

Payroll-Unipay

- involving the implementation of a UNIPAY package and the development of associated payroll systems needed for a total staff of approximately 65,000 spread over many sites throughout the U.K. IBM experience essential and a knowledge of COBOL and/or DL/1 desirable.

Merchandise Control

- either developing a large advanced mainframe system designed to account for the movement of all merchandise between branches, warehouses and suppliers or installing a new and rapidly expanding specialised stock control system which will run on distributed mini-computers. Experience must include COBOL and IBM mainframes/mini-computers, preferably HP 3000's.

Research

- developing a complex on-line system to provide support for all aspects of the Toxicological studies carried out in the Company's Laboratories. A good working knowledge of FORTRAN, or experience of DIGITAL hardware, preferably with RSX11 real time operating system, is required.

Software Programming

- to work with our specialist Technical Support staff and play an important role in a continuing programme of expansion. We now have 3081 and 3032 main frames running on the MVS/SP operating system. These staff plan and implement major software developments, handle a variety of short-term projects such as evaluating and installing software packages and diagnose and solve day-to-day problems. Experience must include IBM ASSEMBLER plus a knowledge of MVS or CICS and DL/1.

A further advantage of working for Boots is the environment. Our computer staff work in modern offices situated either in 300 park-like acres at Beeston, or two miles away in the centre of the attractive City of Nottingham. A City well-endowed with amenities, entertainment and low-cost housing.

Other benefits include salaries within the range £7k - £11k, dependent upon experience, relocation expenses where applicable, profit sharing, pension schemes and staff discount facilities.

Want to know more about your new position?

Then write to or telephone Janet Thompson, Employment Services, The Boots Company PLC, Head Office, Beeston, Nottingham NG2 3AA. Tel: (0602) 56111 ext 2321.



ACCOUNT MANAGERS

Switch over to **gandalf**

Target £24,000 plus

+ Choice of Car

The year's most significant event in the data communications business is the arrival of GANDALF. DIGITAL COMMUNICATIONS LTD as a direct sales force in the United Kingdom. With an impressive UK manufacturing facility now well established, the company is intent upon achieving startling growth both from its existing customer base and from new accounts.

The aim is to create a highly motivated, top quality sales team capable of marketing existing and new generation products to major end-users and OEMs. A strategy of high-level negotiation with named key accounts is envisaged.

Candidates must be able to demonstrate a PROVEN sales track record with a systems orientation, ideally in data communications. In addition, commitment and drive will be essential to fully contribute to and benefit from such a growth opportunity.

The sales and marketing structures are embryonic, and obviously allow top performers EARLY MANAGEMENT OPPORTUNITIES in a company which places the highest priority on developing its people. High achievers can also expect EXCEPTIONAL REWARDS from an attractive employment package, which includes a high basic salary.

For further information, telephone Paul Child on Windsor (07535) 56155 from 8.30 to 6.30 or on 04868 7403 from 8.00pm. Alternatively write to Kramer Westfield Associates Ltd, 23 Victoria Street, Windsor, Berks, SL4 1HE.

Kramer Westfield

Digital Signal Processing

Cambridge Consultants Limited is one of the U.K.'s leading contract design and development organisations, carrying out work in electronics, physics and software for a wide range of clients. We are 160 strong, and are situated in pleasant surroundings on the Cambridge Science Park.

We are active in all areas of digital electronics, including digital communications and signal processing, semi-custom LSI design, and microprocessor systems. Our Engineers are involved not only in state of the art design work, but also in talking to our clients, preparing proposals and managing some of the projects in which they are involved.

We are looking for an Electronics Engineer with industrial or research experience in designing digital signal processing systems to join our Digital Processing Group. He or she will be involved not only in applying DSP techniques within systems, but also in all the other aspects of electronic and software system design.

The successful applicant will probably be in the age range 25-30, and the starting salary in the range £9,500 to £13,000. We also offer a number of additional benefits, including flexible working hours.

To apply, please contact Janet Helas, Personnel Officer, Cambridge Consultants Limited, Science Park, Milton Road, Cambridge CB4 4DW. Tel: Cambridge (0223) 358855.

**CCL
DESIGN AND
DEVELOPMENT**

Programmers

Banbury, Oxfordshire

Having recently transferred their systems to IBM hardware, our Clients are embarking on a major development project and require 2 programmers to join the Systems and Programming Team.

They need applicants in their mid 20s -

- * with a minimum of 18 months COBOL experience
- * familiar with IBM/DOS/VSE (4300)
- * who prefer a small team environment
- * preferably with CICS/DLI experience (although training is available)

This Company is part of a large Finance Group, consequently previous experience in a similar environment is a distinct advantage.

The salary is competitive and the range of fringe benefits is both extensive and generous.

If you are looking for a challenge in a stimulating environment please write with details of career history to:

Confidential Reply Service, Ref ABP 723, Austin Knight Limited, Tricorn House, 51-53 Hagley Road, Edgbaston, Birmingham B16 8TP.

Applications are forwarded to the Client concerned, therefore Companies in which you are not interested should be listed in a covering letter to the Confidential Reply Supervisor.

**Austin
Knight
Advertising**

UMIST DEPARTMENT OF COMPUTATION TWO INFORMATION TECHNOLOGY LECTURESHIPS

Applications are invited for two new lectureships created by the recent UGC Information Technology Initiative. The lectures are required to join the team teaching the Data Processing stream of the successful MSc Conversion Course. Their duties will also include support for the undergraduate course, in context research and to play a role in the administration of the Department. Preference will be given to applicants with research interests in Data Bases, Man-Machine Interface Design and Distributed Computer Systems. Applicants will be particularly welcome from candidates with a research degree or industrial experience in any of these areas. Requests for application forms and further particulars, quoting reference COM/93/85, should be sent to the Establishment Section, Registrar's Department, UMIST, PO Box 86, Manchester M60 1UD, as soon as possible. (37541)

LOTHIAN REGIONAL COUNCIL DEPARTMENT OF EDUCATION NAPIER COLLEGE OF COMMERCE AND TECHNOLOGY RESEARCH FELLOW OF RESEARCH ASSISTANT

Department of Chemistry, Napier College of Commerce and Technology, Edinburgh EH10 5DT. Salary on Scale £9213-£9856 or £9873-£10701. The post is funded by SERC for up to three years and applicants should normally possess a PhD or equivalent post-graduate experience. A thorough knowledge of computer programming in natural and social sciences is essential and a keen interest in protein structure and/or X-ray crystallographic techniques is highly desirable. Initial salary is dependent on qualifications. Application forms and further details can be obtained from: The Administrative Officer (Personnel), Napier College of Commerce and Technology, Colinton Road, Edinburgh EH10 5DT. (37719)

GRADUATE PROGRAMMERS

Required by Consultants engaged in independent assessment studies of defence systems and other complex engineering projects. Candidates should have at least 2 years' experience in real-time applications. Experience in PDPI, CORAL and MASCO would be an asset. Salary from £7,500, depending on qualifications.

Apply, with full CV, to:

Res. Thompson & Partners, Newington, West Street, Farnham, Surrey GU14 7ED. Telephone: 0252 711414. (37741)

Saudi Arabia: £36,000 plus package

Thames Valley: £17,000

Samecon, an International company with offices in Saudi Arabia and the Thames Valley is seeking to recruit the following staff:

Saudi Arabia — Analysts
Systems Designers
Systems Managers
Computer Operators
Thames Valley — Analysts
Senior Programmers

At least 5 years experience in a general commercial environment is required and qualifications in engineering or accounting would be particularly desirable. Operators and programmers must have experience of Perkin Elmer 3200 range computers running OS/32, Reliance and Cobol.

Salary levels will be commensurate with experience:

Saudi Arabia: to £36,000 p.a. tax free plus free accommodation, car allowance and free health care. 2 year contracts.
Thames Valley: to £17,000

If you are confident about accepting one of these challenging positions, please write enclosing a C.V. to:



The Personnel Manager,
Samecon,
Harleyford Marina,
Marlow,
Buckinghamshire.
Tel: (06284) 74245

All replies will be treated in the strictest confidence.
Offices in: Riyadh, Hamburg, Philadelphia, Marlow

ANALYST PROGRAMMER West London neg. around £12,000

The major systems development programme of this fast-growing specialist service organisation - part of the largest US leasing/rental group - calls for the recruitment of a business orientated analyst programmer.

Reporting to the Finance Director you will be responsible for ensuring the smooth installation and implementation of the company's new mini-computer based systems including the selection of relevant software and peripherals. This will involve liaison with all levels of management within the UK and with peer groups in the USA. Applicants should have had at least four years experience and be capable of handling all aspects of creating a DP unit - from systems design through program writing to implementation - and of working closely with external suppliers. Recent experience of DEC equipment, ideally using BASIC under RSTS/E, is essential.

The rewards for this "self-management" will be a high degree of autonomy as well as the opportunity for personal development with a highly profitable service organisation. Salary will be in the region indicated but will not prove an obstacle to the right candidates.

Call David Mason Johns today on 01-948 5922 (24 hour answering service) on 01-747 0989 (evenings and weekends) for an application form, alternatively write to him at the address below. Please quote Ref D8334/CV.

Work with the best

KPG
01-948 5922

KPG Computer Support Services Ltd.
Cobden House, Park Lane, Richmond, Surrey TW9 2RA



A better life style and a better career. The best of both worlds at Abbey Life.

Abbey Life is one of Britain's leading insurance companies with a long history of expansion. Within the company Data Processing is playing an increasingly important role with our Systems Development and Teleprocessing facilities continually being upgraded. Just one example of this is the IBM 3083 E16 we've just installed with another one scheduled in the future. This means that anyone joining us now will be presented with very real opportunities for career development; and at the moment we'd like to talk to:

APPLICATION PROGRAMMERS-COBOL SYSTEMS PROGRAMMERS (£7,500-£13,000)

We operate a country-wide Branch Networking System using IBM mainframes under MVS/SP 1.3 plus JES 2 shared pool with networking under SNA/VTAM - MSH/NTCP. Amongst the development aids in use are ROSCOE, LIBRARIAN, DATAMANAGER, TESTMANAGER, ABEND-AID and PC/70.

The Benefits

In addition to a salary of between £7,500 and £13,500 p.a. (depending on your experience), there is an impressive range of benefits. These include a mortgage subsidy scheme, a relocation package, non-contributory pension scheme, free life insurance, a training scheme, a subsidised restaurant and sports and social club. Also, of course, you'll enjoy the relaxed lifestyle of living in an exceptionally pleasant coastal town.

Qualifications

COBOL Programmers applying should have had at least three years experience after training. Systems Programmers are required to have an ASSEMBLER background with a minimum of three years experience in the installation and maintenance of CICS/VS, OS/VS or MVS/SP 1.3. All applicants must hold at least two 'A' levels.

To Apply

Please write or telephone for an application form to:
Val Hastrop or Alison Potter, S & D.P. Technical Recruitment:
Abbey Life Assurance Co. Ltd., Abbey Life House,
80 Holdenhurst Road, Bournemouth, BH8 8AL.
Tel: Bournemouth (0202) 292373 Ext. 4444



Abbey Life

Are you up to the challenge of a top Systems Consultancy?

WE REQUIRE CONSULTANTS, SYSTEMS ENGINEERS AND PROGRAMMERS
SALARY £7,500 TO £16,000.

If you have a degree, or equivalent, plus two or more years' experience in the development of systems and software tools we would like to hear from you.

We want professionals with experience in real-time mini and micro-computer systems development and implementation.

You will enjoy the prospect of contributing to a rapidly growing organisation.

Systems Designers is a leading international systems consultancy specialising in the mini and micro-computer areas.

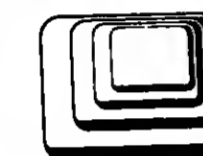
We offer consultancy, systems and software development

services, and a range of latest technology software products.

Project involvement covers a very broad spectrum. Opportunities exist in all five operational areas and there's scope for working in the UK, Europe and North America.

INFORMATION SYSTEMS
Videotex and high availability systems for electronic funds transfer.

CONSULTANCY
Analysis, research and project management services.



Systems Designers

INDUSTRIAL SYSTEMS
Real-time systems, particularly in the energy field.

GOVERNMENT SYSTEMS
Specialising in communications and defence systems.

SOFTWARE TECHNOLOGY
Systems Software research, development, products and consultancy.

For further information contact Pamela Hayes-Jones on Freephone 3179. Or write to her at Systems Designers, Systems House, 105 Fleet Street, Fleet, Hampshire, GU11 3NZ.

Sales & Marketing Manager

Central London & Home Counties

£25K on target + car

Our client is one of the pioneers in the development of the microcomputer market in the UK, marketing packaged systems based on well known 8 & 16 bit micro's and minicomputers. Over the past five years a range of business software packages have been successfully installed within a wide variety of small and large users. The company has substantial expertise in developing and maintaining software for new business systems and following the recent introduction of a new and exciting range of micro's they are looking to expand their user base yet further.

Applications are invited from experienced sales and marketing professionals to join the executive management team in order to determine the company's marketing policy and to carry it through to a successful conclusion. The emphasis will be on a 'total involvement' approach and in the early stages it is impor-

tant to make a contribution through incremental business.

Candidates should have an established track record in sales of micro's, mini's or business systems, complemented by a sound knowledge of commercial applications. In addition the ability to implement creative marketing policies will be a significant and determining factor.

The remuneration package includes a high basic salary, a negotiable initial guarantee and a generous commission scheme and it is expected that the successful candidate will become involved in an equity partnership within the first two years.

In the first instance contact Chris Denington on 01-631 4184 or write to him at:

A & A Consultants (Holding) Ltd., County House,
10 Little Portland Street, London W1N 5DF.



A SIMPLE DECISION

Now is the right time for all you ambitious permanent or contract Programmers and Analysts to come to a simple decision.

Find that better vacancy from our professional register of over 500 jobs.

Just simply send back the coupon - we will respond.

NAME _____

ADDRESS _____

PHONE: home _____ work _____

Position/
salary reqd. _____

Present position _____

C.V. enclosed/Please send Application Form (please delete as required)

Please send to: U.C.A. Ltd
FREEPOST
Impact House
LONDON NW11 6YT



01-458 8533

MANAGER NEW TECHNOLOGY

£11,859 to £13,116

Applications are invited for this new post from persons with sound experience in computing, business and management, and preferably some experience of teaching/instructing young people. Practical experience in those areas of new technology, including computer programming, word processing, computer maintenance and electronics is required.

The Manager will be responsible for, and involved in, setting up and running an Information Technology Centre (ITC). This Centre is the result of an initiative by Southampton City Council, in conjunction with the Department of Industry and the Manpower Services Commission. The ITC will provide a group of 30 unemployed young people with training and work experience in a range of adaptable skills and thus improve their prospects of either finding permanent employment or entering further training.

Removal and resettlement expenses payable. Application forms available from the Personnel Manager, 8th Floor, Arundel Towers North, Portland Terrace, Southampton, SO9 4ZF. Telephone Southampton 23855. Extension 643.

(Previous applicants will automatically be considered.)
Closing date 8th June 1983.

**Southampton
City**

UNIVERSITY COLLEGE LONDON Department of Computer Science SYSTEMS MANAGER/ENGINEER

Vacancies exist for two posts in the above department. One post is as SYSTEMS MANAGER, with experience of C and the UNIX operating system are important. The second post is as ENGINEER to develop and maintain computers and digital electronics (including communications).

The department is starting a new M.Sc. course specialising in Computer Aided Design in collaboration with the Electronic Engineering Department. It has a very active program of research in the areas of computer communication, databases, distributed systems, and multi-media communications. Data communications within the Department is provided by a number of Cambridge Rings and gateways provide access to wide area networks. A satellite ground station has been installed for interconnection of geographically separated local area networks. Some half dozen medium-sized computers provide internal services.

Applications for the above posts, including a c.v. and the names of two referees, should be sent to Professor P. L. Kendall, Department of Computer Science, University College London, Gower Street, London WC1E 6BT. Salary will be in the range £7,533-£13,568 per annum less London Allowance for the first post and £7,568-£13,568 p.a. for the second. The point on the scales would depend on age and experience. Closing date: 2 June, 1983.

(3740)

POLYTECHNIC OF THE SOUTH BANK Department of Mathematical Sciences and Computing Temporary (two years) Principal Lecturer

and
Temporary (one year) Lecturer II/
Senior Lecturer

COMPUTER SCIENCE

Applications are invited for the above posts. Applicants will be expected to make a substantial contribution to the teaching of final honours degree level and research in one or more of the following areas: Operating systems, computer graphics, computer assisted learning. Additional teaching duties could include program design in Pascal and introductory computer systems. The Principal Lecturer post is a substantial publications record and/or industrial experience. The person appointed will also be expected to take on some significant administrative responsibilities. Salaries for the scales are as follows:
Principal Lecturer £11,931-£15,018
Senior Lecturer £10,173-£12,512 plus London Allowance £939
Lecturer £8,855-£11,022
It is hoped to appoint suitable candidates without delay and so immediate application is advised. Further details of the Department and its activities, together with an application form, may be obtained from the Staffing Office, 01-428 8888, Ext. 2356. (3880)

NOREX CANNES, FRANCE

Experienced and enthusiastic

**COBOL/ASSEMBLER/
PROGRAMMER/ANALYST**

for Micras to work in a demanding, varied and interesting position.

Salary negotiable.
Contact: Lucie Lallo, Norex SA, 14 Rue Latorou, Mantes-la-Jolie, France. Tel. 01-693-9942-201.

لوريس لالو

New European R&D Centre

Opportunities in

- *SOFTWARE *DOCUMENTATION
- *HARDWARE *MANAGEMENT



Have you seen our special Recruitment Feature announcing that Northern Telecom Data Systems is establishing a New Product R&D Centre in South Hertfordshire?

IF YOU HAVEN'T CALL ALAN CARNELL
OR ANDREW CARTER ON 01 935 0671

Technical Sales & Management Appointments

Specialist Computer Recruitment Ltd
James House, 46 James Street, London W1M 5HS 01-935 0671/486 0461
Birmingham • London • Manchester • Brussels • Amsterdam

(2827)

SOFTWARE & SCIENTIFIC DESIGNERS

LONDON £10,000-£18,000 + benefits

If you are going to work in London then work for the best. Our client is a very successful Systems House, with a first class record in Defence Systems. They require a number of additional people to fill their expanding project team in the following areas:

Operational Analysis

A senior Naval Studies Consultant with experience in operational and systems studies in the Naval area.

A Technical Consultant with more general defence experience in Studies, Simulation or O.R.

Navigation Systems

A senior appointment for candidates with Applied Mathematics background and experience of advanced filtering applications.

Simulators

Senior Consultant with experience of Test Rig or training Simulators.

Real Time Software Design

Junior Team Leaders. Excellent opportunity to combine technical skills with responsibility for small teams and client liaison. Proven capability of Real Time Software Design on military projects is essential. CORAL/VAX is preferable.

Successful candidates will enjoy a very professional environment where individual effort and contribution is rewarded by a progressive career development scheme.

Please telephone 01-399 9183 or write enclosing your C.V.

DATAMATICS
RECRUITMENT SERVICES
01-399 9183
Datamatics (Recruitment) Ltd, Surrey, Surrey KT8 6BR

SALES EXECUTIVE

CONTINUOUS PROCESSING

BASIC TO £15,000
PLUS GUARANTEE AND CAR
LONDON BASED
MANAGEMENT POTENTIAL

The launch of a new range of computers in competition to TANDEM and CTL MOMENTUM continuous processors has enhanced our Client's already comprehensive portfolio of computer products.

A specific group has been created within the Company's structure to market this new range. Controlled by a Marketing Manager, the group now has a vacancy for a professional Sales Executive with management potential.

The ideal candidate will have experience in:

- ★ D.P. equipment sales.
- ★ Systems sales with strong communications and software content.
- ★ Knowledge of information services available in the U.K., particularly to financial users, e.g. Reuters, Extel, Topic, Teletext, PSS, Videotex, Teletex.

If you feel your background fits this specification and you are interested in discussing this excellent career opportunity, then telephone BOB BOWER, Advising Director immediately. Ref. CW2605/3

Hutton Executive Selection
Limited
21 Palace Street
London SW1E 6HW
Tel. 01-830 0434 (24 hours)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

COMMUNICATIONS CONSULTANT

LONDON TO £16,000

If you have several years' experience of the telecommunications industry, together with a good academic background and the right interpersonal skills to deal with clients, then you may wish to consider building on these assets to enter consultancy.

Specifically, we are looking for:

- ★ A solid software development background with particular reference to the communications aspects.
- ★ Knowledge of communications' standards and current developments (e.g. X25, ISO standards, UNIX).
- ★ Experience and awareness of office automation requirements and developments.
- ★ Experience of sorting out communications' problems, using a variety of hardware and protocols.

For further information, please contact MARK IRENS quoting reference CW2605/2.

Hutton Executive Selection
Limited
21 Palace Street
London SW1E 6HW
Tel. 01-830 0434 (24 hours)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

SYSTEMS SOFTWARE SUPPORT CONTINUOUS PROCESSING

TO £16,000 & CAR
LONDON BASED

A vendor of worldwide renown in a wide range of computer products has recently launched a new range in competition to the TANDEM and CTL MOMENTUM continuous processors.

This launch has led to a crucial support vacancy. We seek a person capable of a multi-faceted role which includes the installation of new product releases, system administration, customer support, all forms of pre-sales support (which includes technical assistance with proposals, demonstrating software packages, and assistance at presentations) and training.

Candidates with experience in some of the areas listed below should identify well with this position:

- ★ Good real-time on-line systems software.
- ★ TANDEM, DEC, PRIME or DATA GENERAL equipment.
- ★ PL/I and PASCAL (applications software languages).
- ★ Communications protocols 3270/X25/SDLC/HDLC.

Please telephone or write to BOB BOWER, Advising Director. Ref. CW2605/1

Hutton Executive Selection
Limited
21 Palace Street
London SW1E 6HW
Tel. 01-830 0434 (24 hours)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

WEST MIDLANDS

SENIOR CONSULTANT to £18,000 + Car
C.A. or C.M.A. with both manufacturing/financial exposure for Professional Consultancy.
DATA PROCESSING MANAGER £10,000 + Package
Suitable manager who has introduced a new computer (ideally system 38) into manufacturing group.
DATA PROCESSING MANAGER to £12,000
Opportunity to manage new HP 3000 installation.
PROJECT LEADER £13,500
Sent after all seek sound IBM PL1 MVS senior systems experience.
RPG III ANALYST PROGRAMMER £10,000 + Car
Leading software house seek sound commercial/manufacturing GSD experience.
DEVELOPMENT MANAGEMENT OPPORTUNITIES to £14,000 + Car
A number of specific management opportunities have been created within Midland IBM 4300 sites, introducing manufacturing and distribution systems.
SUPPORT ANALYST £8,000-£11,000 + Car
Opportunity to utilise both commercial/manufacturing business systems with leading computer manufacturer.
SENIOR SYSTEMS ANALYST £12,000
Particular packages required: UNIPAC—UNIPENSION— or QPAC.
SYSTEMS PROGRAMMER £10,000
MVS technician required for prestigious user.
DP LECTURER £10,000 + Bonus
All round professional to join education environment and COBOL and UNIX an advantage.
WP ANALYST £8,000 + Car
Experience gained with manufacturer to join an established market leader.
ANALYST PROGRAMMERS £9,000 + Car Allowance + Bonus
Leading IBM software house required experience COBOL or PL1 professionals.
ANALYST PROGRAMMERS & PROGRAMMERS £7,000-£11,000
Upwards of 1 years PL1 experience required for development opportunity around the Midlands.
PROGRAMMER ANALYST to £8,000 + Benefits
Solid 1 years BASIC experience required for leading interactive MINI supplier.
PROGRAMMER £8,000
Customer orientated BASIC programmer required for high-tech application.
ANALYST PROGRAMMER £8,200
Micro assembler required for the development of LOCAL AREA NETWORKS & commercial systems.
ANALYST PROGRAMMERS to £9,500
Required for major systems development projects in a TIME SHARING environment.
PROGRAMMERS to £7,500
For an ICL 2900 installation utilising COBOL, DIME and the latest on-line facilities.
PROGRAMMERS £Negotiable
18 months RPG II or 6 months RPG III urgently required.

Contract Staff with IBM System 34 or 38.
RING NOW!

MITCHELL KEYTE & ASSOCIATES LTD
RECRUITMENT AND SEARCH CONSULTANTS
021-449 4030 (24 hours)
55 ST MARYS ROW, MOSELEY
BIRMINGHAM B13HW

CONTRACTS

ICL

DATA BASE DESIGNERS — DATA ANALYSTS/MODELLING
CONSULTANTS
BUSINESS ANALYST/SYSTEMS ANALYSTS
2800 VMEB IOMS ANALYST PROGRAMMERS
IDMS VME COBOL PROGRAMMERS
DRS CIS-COBOL ANALYST PROGRAMMERS
TPMS SENIOR PROGRAMMERS
TECHNICAL MANAGER COMMS EXPERIENCE
ME 29 TIME RANGE COBOL PROGRAMMER
1900 GEORGE III OPERATION SUPPORT
ICL 25 ASSEMBLER PROGRAMMERS
LOOK AT DVERSEAS COLUMN

IBM

IBM 8100 DPPX MACRO ASSEMBLER
IBM 8100 DPPX COBOL PROGRAMMERS
IBM SYSTEM 38 RPG III ANALYST/PROGRAMMERS
DS JCL COBOL PROGRAMMERS
MVS COBOL PROGRAMMERS
IMS COBOL/ASSEMBLER PROGRAMMERS
IBM DL1/ICL COBOL PROGRAMMERS
CICS DLS SYSTEM PROGRAMMERS
MVS SYSTEM PROGRAMMERS
IMS DL1 DATA ANALYST
IMS DATABASE ADMINISTRATOR

OTHER

VAX CDRL 66 MILITARY/DEFENCE
TANDEM NDNDTP II ANALYST PROGRAMMER
HP 3000 QUIZ QUICK COBOL PROGRAMMER
HP 3000 COBOL PROGRAMMERS SCOTLAND
HONEYWELL DPS 6 MOD 400 COBOL ANALYST PROGRAMMER
COMMS/NETWORKING ANY HARDWARE ANALYST
PROGRAMMERS

OVERSEAS

SEL MPX FORTRAN/ASSEMBLER PROGRAMMERS — BRUSSELS
DEC PDP VMS COBOL PROGRAMMERS — BRUSSELS
IBM SYSTEM 38 RPG III ANALYST/PROGRAMMERS — BRUSSELS
MICRO COMPUTER PROJECT MANAGER
ASSEMBLER PASCAL TELECOMS PROTOCOL — SDME DUTCH,
FRENCH, GERMAN FOR HOLLAND.
ICL 2800 COBOL PROGRAMMERS — KUWAIT
ICL IDMS TPMS COBOL PROGRAMMERS — SWEDEN
ICL ME29 IDMS TP TEAM LEADER — BRUNEI
VME SUPPORT CONSULTANT — NIGERIA
GEORGE III OPERATIONS SUPPORT
TRAINING/JCL/IMPLEMENTATION — SOUTH AFRICA

Comac
Computer Appointments & Contracts Ltd
27 Town Centre, Hatfield, Herts. Telephone Hatfield (07072) 65699 or 69889. (24 hour answering service)

Computer Appointments & Contracts Ltd

27 Town Centre, Hatfield, Herts. Telephone Hatfield (07072) 65699 or 69889. (24 hour answering service)

(2708)

